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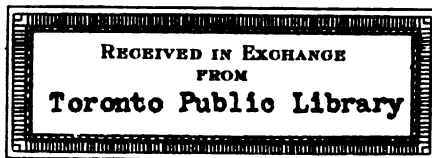
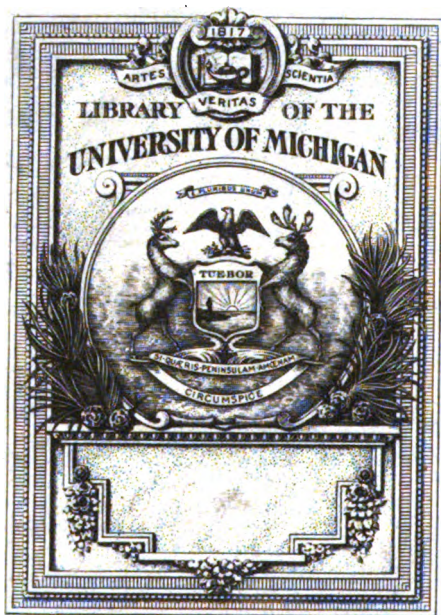
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SESSIONAL PAPERS.

VOL. XIX.—PART II.

FIRST SESSION OF THE SIXTH LEGISLATURE.

OF THE

PROVINCE OF ONTARIO. *Legislature
assembly.*



SESSION 1887.

Toronto:

PRINTED BY WARWICK & SONS, 26 AND 28 FRONT STREET WEST.
1887.

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- No. 29.. Return to an Address to His Honour the Lieutenant-Governor, praying that he will, in his capacity as visitor of the Western University of London, Ontario, call upon the Senate of said University to furnish a full and accurate account of the property of the University, and the income received therefrom, in order that the same may be laid before the Legislature, as directed by section 5, of 41 Vic., cap. 20. (*Not printed.*)
- No. 30.. Return shewing the total number of Students in University College at the date of the Order; the number of female students at the same date, and also, the number of students attending lectures in each of the following subjects:—Greek, Latin, Mathematics, Pyhsics, History, Ethnology, English, French, German, Italian, Spanish, Hebrew, Chaldic, Syriac, Logic, Mental and Moral Science, Biology, Chemistry, Mineralogy and Geology. (*Not printed.*)
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- No. 32.. Return shewing the names of the persons, firms and companies, indebted to the Province on the first day of January, 1886, on account of Timber Dues, Ground Rent, or Bonuses for Timber Limits, the amount of indebtedness in each case, the balance, if any, due by such persons, firms and companies, on the first day of January in each year since 1880. The total amount of such indebtedness on the 1st day of January, 1886. (*Not printed.*)
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- No. 47.. Statement in detail of receipts and expenditures on account of the Mercer Estate for the year 1886. (*Not printed.*)
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TWELFTH ANNUAL REPORT

OF THE

ONTARIO AGRICULTURAL COLLEGE

AND

EXPERIMENTAL FARM,

1886.

Printed by Order of the Legislative Assembly.



Toronto :

PRINTED BY WARWICK & SONS, 26 AND 28 FRONT STREET WEST

1887.

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REPORT OF THE
ONTARIO AGRICULTURAL COLLEGE
AND EXPERIMENTAL FARM, GUELPH.

FOR THE YEAR COMMENCING THE 1ST JANUARY AND ENDING THE 31ST DECEMBER,
1886.

GUELPH, January 3, 1887.

To the Honourable A. M. ROSS,
Commissioner of Agriculture:

DEAR SIR,—I have the honour to submit herewith the Twelfth Annual Report of the Ontario Agricultural College and Experimental Farm.

In this Report we have reviewed briefly the work of the year 1886, under eight heads, as follows :—

- PART I.—THE REPORT OF THE PRESIDENT.
PART II.—THE REPORT OF THE PROFESSOR OF GEOLOGY AND NATURAL HISTORY.
PART III.—THE REPORT OF THE PROFESSOR OF CHEMISTRY.
PART IV.—THE REPORT OF THE PROFESSOR OF VETERINARY SCIENCE.
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PART VI.—THE REPORT OF THE PROFESSOR OF AGRICULTURE.
PART VII.—THE REPORT OF THE FOREMAN OF THE HORTICULTURAL DEPARTMENT.
PART VIII.—THE REPORT OF THE PROFESSOR OF DAIRYING.

I have the honour to be, sir,
Your obedient Servant,

JAMES MILLS,
President.

PART I.

REPORT OF THE PRESIDENT.

INTRODUCTION.

I am pleased to observe a rapidly increasing interest in the work of agricultural education throughout this Province, and, I might say, throughout the whole Dominion. This awakening is, no doubt, due to many causes; such, for instance, as the increased efficiency of our agricultural press, the work of the Ontario Agricultural College, the reading of our reports, and the holding of Farmers' Institutes; but, perhaps, the most potent agency of all has been the simple logic of circumstances, which are forcing thoughtful people to the conclusion that something must be done to make the work of our agriculturists more productive, and secure to the farmers of this country a larger return for the labour and capital annually expended on their farms.

With a view to the accomplishment of this object, I have, for the last four years, persistently urged (1) that all teachers in training at our Normal Schools should have a short course of lectures on agriculture, live stock, dairying, and forestry; (2) that the first principles of agriculture should be taught in all our rural Public Schools; and (3) that there should be established in each of our thirteen agricultural districts, an Agricultural High School, to give young farmers instruction in agriculture, live stock, dairying, veterinary science, chemistry, geology, botany, reading, writing, spelling, arithmetic, English grammar, English literature and composition. Nothing definite has yet been done towards the adoption of any of these suggestions; but I have reason to believe that, before long, some sort of provision will be made for giving a course of lectures on agriculture to the teachers at the Toronto and Ottawa Normal Schools. When this is done, the chief difficulty in the way of introducing the subject into the Public Schools will be removed, and we may then look for brighter days.

The depressing circumstances to which I have incidentally alluded are the diminishing yield and the low price of farm produce. These two results, coming together, have given rise to some anxiety in the minds of those who fully realize that agriculture has been, and must continue to be, the chief source of our wealth and prosperity. It cannot be denied that the agricultural outlook has been somewhat discouraging; but I believe we have passed the crisis and the prospect is becoming brighter every year. Prices are not likely to be much lower than they are now; and there are indications of a larger yield than we have had for some time.

It may be laid down as fundamental, that success in Canadian farming is no longer possible without proper drainage, thorough cultivation of the soil, and the rearing and feeding of live stock enough to furnish a constant and liberal supply of good farm-yard manure. Accepting this statement as unquestionable, we enquire what the farmers of Ontario are doing, and we are pleased to find evidences of progress in the right direction. The returns of the Ontario Bureau of Industries show that the Province is spending a considerable sum of money in under-draining, is importing a larger number of thorough-bred animals from year to year, is raising and feeding more cattle, growing a smaller acreage of wheat, barley, and rye, and a larger acreage of oats, pease, and turnips—all of which goes to prove that our farmers are waking up to the necessity of thorough under-draining and more liberal manuring. Add to this the fact that the dairy industry is making rapid progress among us, and we have reason for hopefulness, rather than dis-

couragement. One thing we need very much, that is, better cultivation of the soil, to keep our land thoroughly clean and get the full benefit of frost, manure, and atmospheric action. There must be a more liberal use of the plow, gang-plow, and cultivator, before we can reasonably hope for anything like the full returns which the farms of this Province are capable of producing. The prevalent custom of plowing stubble ground only once after harvest has produced bad results. Those who follow that system do not and cannot keep their land clean. A large portion of the farm should be plowed twice every fall—ganged immediately after the crop is taken off, and plowed again the ordinary depth sometime before the winter sets in. The farmers who follow this method, who seed much to clover, and use the cultivator in the spring, are making money in spite of the low prices. There are, of course, many other points which need attention under the head of tillage; but this is not the place to discuss them. We merely mention the matter, and express the hope that the growing desire for knowledge among farmers everywhere may soon lead to much needed improvements under this head.

CHANGES AND PROGRESS AT COLLEGE.

In reviewing the events of the year 1886, we find two or three items of information, which may be more interesting to general readers than the ordinary details of College work. The most important of these items are the admission of county students, the appointment of an Advisory College Board, the erection of farm buildings, and the organization of a class for post-graduate work.

At the last session of the Ontario Legislature, two somewhat radical amendments were made in the law which governs the Ontario Agricultural College and Experimental Farm. By one, the Commissioner of Agriculture sought to encourage the attendance of farmers' sons at the College; and, by the other, he made provision for the appointment of an Advisory Board of practical farmers, to assist him in the management of the Institution.

COUNTY STUDENTS.

The first amendment was to the effect that "every County and every Territorial District in the Province shall hereafter have the privilege of having during all College terms, one student in attendance and receiving instruction at the College, without the payment of any entrance or tuition fee. The County Council of each County shall nominate the student entitled to this privilege for the County, and the Advisory Board shall nominate the students for the Territorial Districts. Such student must be the son of a practical farmer resident in the County or District, and have lived on his parent's farm at least two years prior to his admission to the College.

This amendment was received with some disfavor, when it was first proposed in the House; and several supporters of the Government expressed their disapproval in Committee: but it was passed in deference to the opinion of the Commissioner of Agriculture; and I am now in a position to say that it is likely to be a decided benefit to the College. The result is that thirty-two Counties have nominated young men, and twenty-seven of these—all farmers' sons of a good type, are now in attendance. This gives us a larger proportion of farmers' sons and a better class of students than we have had.

The twenty-seven Counties which are now represented by nominated students are as follows:—Brant, Bruce, Carleton, Dufferin, Frontenac, Glengarry, Haldimand, Haliburton, Kent, Leeds, Lennox and Addington, Lincoln, Middlesex, Norfolk, Northumberland and Durham, Ontario, Oxford, Peel, Peterborough, Russell, Stormont, Waterloo, Welland, Wellington, and York.

ADVISORY BOARD.

By virtue of the second amendment, an Advisory Board of practical farmers was appointed early last spring, from both political parties, to assist the Commissioner of Agriculture in the management of the different departments of the Institution, but especially the farm, regarding which the judgment of successful farmers from different parts of the Province should have considerable weight.

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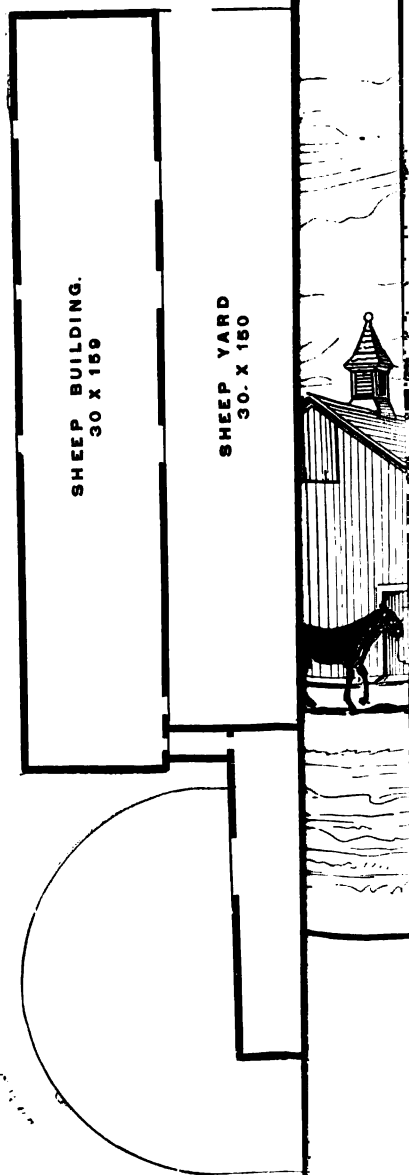
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ONTARIO AGRICULTURAL COLLEGE, GUELPH.

THE ATTACHED FARM BUILDINGS.

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HORSE STABLE

STEPS TO
BASILIC

LOFT OVER
SHEEP PENS

The Board consists of eight members, one *ex-officio*, and seven appointed by the Lieutenant-Governor in Council, as follows :—

A. Blue, Deputy Commissioner of Agriculture, *ex-officio*, Toronto.

John I. Hobson, Mosboro', County of Wellington.

John McMillan, Constance, County of Huron.

Dr. William Saunders, London.

J. S. Smith, Ailsa Craig, County of Middlesex.

Edward Jeffs, Bond Head, County of Simcoe.

G. B. Boyce, Norham, County of Northumberland.

D. A. Dowling, Appleton, County of Lanark.

Chairman—John I. Hobson ; *Secretary*—A. Blue ; *Executive Committee*—John I. Hobson, John McMillan, and Edward Jeffs.

The Board held two regular meetings during the year ; the Executive Committee met once ; and the Chairman visited us from time to time, as occasion seemed to require. At these meetings the management of the College and farm was carefully looked into, some changes were recommended, and a number of suggestions made, chiefly in the direction of greater economy, better instruction in the outside departments, and more thorough efficiency everywhere. So that, already, we have reason to believe that the Commissioner's second amendment, no less than the first, will be of real service to both College and Farm.

NEW FARM BUILDINGS.

An important step in advance is the erection of new farm buildings. The old buildings, which were large and expensive, but too near the College, and not at all suited to our wants, were burned on the 29th September, 1885. New plans were prepared by Prof. Brown, and modified by Mr. Goff, the architect of the barns lately erected by Wm. Mulock, M.P., near Aurora. These plans were submitted to a special committee composed of the farmers in the Ontario Legislature and two or three others selected by the Commissioner of Agriculture. This Committee, failing to agree, the plans were abandoned ; and Mr. John I. Hobson, of Mosboro', who knows more about the barns of Ontario than any other man in the Province, was requested to prepare a new set of plans. With the assistance of James Laidlaw, M.P.P., and some hints from Professor Brown, Mr. Hobson drew the plans, which were finally adopted. Mr. W. H. Worden, of Port Perry, was selected to prepare the specifications, and the contract was let to Mr. F. Schwendiman, of Drayton.

The work is now completed, and the buildings may be said to reflect credit on Mr. Hobson, Mr. Worden, and Mr. Schwendiman, alike. They consist of a large barn, with root houses and cattle stables beneath ; a good horse stable ; and a long shed with suitable yard and pens for sheep—all compactly arranged, spacious and convenient.

POST-GRADUATE WORK.

It has been felt for a length of time that the Ontario Agricultural College should furnish advanced practical instruction in Chemistry and some other branches, for Associates of the institution who may wish to continue their studies in certain departments for a few months longer than the regular course permits, with a view to preparing themselves more fully for the work of the farm, or for positions as teachers or professors of agriculture. A third year course has been suggested by some, and a special class by others.

Up to the present time, we have not seen our way clear to adopt any of these suggestions. We have considered carefully the various proposals made, and have waited until circumstances would seem to justify an extension in the direction indicated.

At length we have concluded to take the first step towards the adoption of a post-graduate course. We have decided to organize a class, which will commence on the 1st November and continue till the 15th April, or as much longer as may be desired.

The class will be open only to Associates of the College, on approval of the College Staff.

THE TERMS OF ADMISSION TO THIS CLASS ARE AS FOLLOWS :

Tuition—Free.

Board—\$2.50 a week, paid from time to time, four weeks in advance.

Washing—At College rates, paid at the end of each term.

Towels, Sheets and Linen Bag—Provided by Student.

Gas and Chemicals used in Laboratory—\$10 for the session, half on 1st November and half on 23rd January.

A Deposit of \$5 to cover breakage, etc., to be refunded if not required.

Students in this class will be exempt from work in the outside departments, and may, with the approval of the President, confine their attention to any portion or portions of the work prescribed below, provided they put in full time on the work selected.

☐ Students wishing to do so, may remain at work in the College during the Christmas vacation (22nd December to 22nd January.)

OUTLINE OF WORK.

1.—*Chemistry.**Agricultural Chemistry*—

- (1) The reading of works, or portions of works, in the College Library, prescribed from term to term by the Professor of Chemistry.
- (2) Reading and discussion with the Professor of Chemistry of articles in the periodicals furnished by the College.
- (3) Writing of theses on subjects prescribed from time to time, and criticism of same.
- (4) Lectures by Professor of Chemistry, developing more fully such subjects as—
 - (i) Fertilizers.
 - (ii) Soil preservation and renovation.
 - (iii) Foods.
 - (iv) Chemistry of the Dairy.

Laboratory Work—

- (1) Handling of apparatus, chemical manipulation, manufacture of gases, etc.
- (2) Qualitative analysis of water, soils, foods, fertilizers, etc.
- (3) Quantitative analysis, volumetric and gravimetric, of soils, fertilizers, water, foods, and dairy products.
- (4) Use of microscope in determining the composition of milk, butter, etc.
- (5) Blowpipe analysis (if desired.)

2.—*Geology.*

Study of geological formations represented in Canada, and the characteristic fossils found therein ; economic products in Canadian rocks ; agencies at work in the disintegration of rocks and their influence in the formation of soil ; methods of distinguishing minerals.

3.—*Natural History and Horticulture.*

Botany.—Study of fungi, with special reference to those which are most injurious to to fruit and grain ; manipulation of the microscope, and methods of mounting specimens for microscopic examinations ; microscopic study of the structure of plants ; economic plants in addition to those treated of in the work of the second year.

Zoology.—Study of parasitic organisms injurious to farm animals ; further consideration of the vertebrata with special reference to economic birds.

Entomology.—Experiments and insecticides ; insects injurious to vegetation ; study of the life history of certain insects by personal observation and investigation on the part of the student.

The reading of portions of works and reports on this subject, as prescribed by the Professor of Natural History.

Horticulture.—Practical work in the greenhouse, garden and orchard ; discussion of general principles observed in landscape gardening ; investigation of the habits of plants by practical observation.

Special work in dairying, live stock, or veterinary science will be provided, if desired.

The organization of this class was not announced till late in October. Hence we could not expect many to enter it the first session ; but the terms of admission and the work prescribed have received the hearty approval of a number of the most prominent Associates of the College, and three have been regularly at work in the laboratory since the 1st of November.

WORK OF THE COLLEGE.

The work of the College is generally discussed under three heads :—The course of instruction, the boarding house, and the general business.

The routine in each of these varies very little from year to year. The course of instruction remains nearly the same, there is but little change in the buildings, and the general business is subject to slight variation.

I.—THE COURSE OF INSTRUCTION IN THE COLLEGE.

The scholastic year begins on the 1st of October, and ends on the 31st of August. It is divided into two sessions, and each session into two terms.

SESSIONS.

Winter Session, embracing the Fall and Winter Terms—1st October to 16th April, omitting the Christmas vacation.

Summer Session, embracing the Spring and Summer Terms—16th April to 31st August.

TERMS.

Fall Term—1st October to 22nd December.

Winter Term—22nd January to 16th April.

Spring Term—17th April to 30th June.

Summer Term—1st July to 31st August.

SUBJECTS TAUGHT.

The regular course of study extends over a period of two years, and includes the following subjects :—

First Year.—Agriculture, Live Stock, Dairying, Inorganic Chemistry, Organic Chemistry, Geology, Structural Botany, Physiology, Zoology, Veterinary Anatomy and Materia Medica, English Literature and Composition, Book-keeping, Arithmetic and Mensuration.

Second Year.—Agriculture, Live Stock, Dairying, Arboriculture, Agricultural Chemistry, Meteorology, Systematic and Economic Botany, Entomology, Horticulture, Veterinary Pathology and Obstetrics, English Literature, Political Economy, Book-keeping, Mechanics, Levelling and Draining.

METHOD OF INSTRUCTION.

The method of instruction is chiefly by lectures. Authors are read and studied in connection with the lectures on English Literature, Political Economy, and Systematic Botany ; but in the other subjects, text-books are not used in the class-room, except for occasional reference.

THE STAFF.

1. JAMES MILLS, M.A., *President.*

English Literature and Political Economy.

1. WILLIAM BROWN, C.E., P.L.S.

Agriculture, Live Stock, and Arboriculture.

3. O. C. JAMES, B.A.

Inorganic, Organic, Agricultural, and Analytical Chemistry.

4. J. HOYES PANTON, M.A., F.G.S.

Geology, Botany, Zoology, Meteorology, and Horticulture.

5. F. O. GRENSIDE, V.S.

Veterinary Anatomy, Pathology, Materia Medica, and Obstetrics ; Practical Handling and Judging of Horses.

J. W. ROBERTSON.

Dairying.

7. E. L. HUNT, THIRD YEAR UNDERGRADUATE, UNIVERSITY OF TORONTO.

Arithmetic, Mensuration, Mechanics, Levelling, Elementary Surveying, and Book-keeping.

THE YEAR 1886.

In addition to what I have already mentioned, there has been nothing specially noteworthy in the year 1886, unless, perhaps, the change in regard to instruction in the outside departments.

Formerly the foremen of the several departments had no definite time set apart for the instruction of students. They were expected to do what they could at all times, but had no definite instructions regarding that part of their work, and the result was a good deal of complaining about lack of instruction.

At the first meeting of the Advisory Board, held last spring, the question of outside instruction was fully discussed; and the decision arrived at was that the Farm Foreman, the Gardener, and the Carpenter, must each devote every afternoon faithfully to the definite and specific instruction of the students sent to his department, throughout the lecture season, that is, from the 1st October to the 1st July in each scholastic year. Since that time the work has been better attended to; and it is hoped that there may not hereafter be any ground for complaint under this head.

This latter arrangement does not, of course, interfere with the work of the regular instructor, who spends the afternoons in teaching students how to plow, harrow, and perform other operations on the farm.

CHANGES IN THE STAFF.

In my last report I spoke of the vacancy in the Department of Chemistry, occasioned by the death of Dr. Hare. The department was without a Professor from October to January; and at the latter date the vacancy was filled by the appointment of C. C. James, M.A., of Napanee.

During the winter, S. M. Barré resigned his position as Professor of Dairying, to undertake similar work in the Province of Manitoba; and J. W. Robertson, of Harriston, was appointed to take his place.

Both these appointments have proved very satisfactory.

ATTENDANCE.

The roll given below contains the names of those who have been in attendance any time during the year, making a total of 149, and representing the following places:—Ontario, 94; England, 26; Quebec, 8; Ireland, 4; Nova Scotia, 4; Scotland, 3; New Brunswick, 3; North-West Territory, 2; Prince Edward Island, 2; Cape Breton, Turkey and the Island of Jersey, 1 each.

Of this number, 91 were in attendance in the Fall Term of 1885; 10 entered in April and 45 in October, 1886.

There are 83 in attendance at the present time—3 associates engaged in post-graduate work, 24 second and 56 first year students.

COLLEGE ROLL FOR 1886.

NAMES.	P. O. ADDRESS.	COUNTY, ETC.
Acres, A.	Ottawa.	City, Ont.
Austin, A. M.	Thornholme, Sunderland.	England.
Bayne, S. R.	Lee, Kent.	England.
Birdsall, W. G.	Birdsall.	Peterborough, Ont.
Bishop, W. R.	Brussels.	Huron, Ont.
Boyd, W. C.	London.	Middlesex, Ont.
Bowie, T. M.	Mount Forest.	Wellington, Ont.
Bradley, G. R.	Manotick.	Carleton, Ont.
Broome, A. H.	Henley-on-Thames.	England.
Brown, C. R.	Norwood.	Peterborough, Ont.
Brown, S. P.	Whitby.	Ontario, Ont.
Brush, G. H.	Clifton, Bristol.	England.
Budd, W.	Delhi.	Norfolk, Ont.
Calvert, S.	Rochdale.	England.
Carlaw, G.	Warkworth.	Northumberland, Ont.
Carman, H. D.	Sarnia.	Lambton, Ont.
Carpenter, W. S.	Simcoe.	Norfolk, Ont.
Chadsey, W.	Wellington.	Prince Edward, Ont.
Cleugh, H. H.	Sargison.	Northumberland, Ont.
Cobb, C.	London.	City, Ont.
Cockburn, J. S.	Hamilton.	City, Ont.
Coutts, W. F.	Glamis.	Bruce, Ont.
Craig, D. J.	Edinburgh.	Scotland.
Craig, H.	Carsonby.	Carleton, Ont.
Craig, J. A.	Russell.	Russell, Ont.
Creelman, G. C.	Collingwood.	Grey, Ont.
Culshaw, C.	Ashton on Ribble.	England.
Davidson, J. F.	Peterborough.	Peterborough, Ont.
Dean, H. H.	Harley.	Brant, Ont.
De Mauritz, R.	London, E. C.	England.
Denison, D.	Selby.	Lennox, Ont.
Denton, E.	London.	City, Ont.
Donald, J. C.	St. George.	Brant, Ont.
Donaldson, F. N.	Mobarnane, Tipperary.	Ireland.
Donnelly, P. E.	Montreal.	City, Q.
Drysdale, W. P.	Liverpool.	England.
Elton, C. W.	Pincher Creek, near Fort MacLeod.	North-West Territory.
Elton, R. F.	do do	do do
Esplen, J. H.	Burgoyne.	Bruce, Ont.
Etherington, C. B.	Torquay, Devon.	England.
Ewing, W.	Mulmur.	Dufferin, Ont.
Farlinger, T.	Dundee.	Quebec.
Fee, J. J.	Toronto.	City, Ont.
Furness, D.	Toronto.	City, Ont.

COLLEGE ROLL—*Continued.*

NAMES.	P. O. ADDRESS.	COUNTY, Etc.
Gardiner, R. J.	Guelph.	City, Ont.
Gibant, E. D.	St. Heliers	Jersey.
Gilbert, W. J.	Shediac	New Brunswick.
Globensky, E. A.	Saint Eustache	Quebec.
Graham, G. M.	Penzance, Cornwall.	England.
Harcourt, G.	St. Ann's.	Lincoln, Ont.
Harkness, A. D.	Irene	Dundas, Ont.
Harrison, R. S.	Stirton, Lincoln, Nottinghamshire	England.
Hart, J. A.	Berwick	Nova Scotia.
Hart, J. W.	Bridgetown	Nova Scotia.
Haslam, G. T.	Dublin	Ireland.
Heacock, F. W.	Kettleby	York, Ont.
Higinbotham, H. B.	Guelph.	City, Ont.
Hirsch, J.	Manchester.	England.
Holtby, R. M.	Manchester.	Ontario, Ont.
Horrocks, T. J.	Toronto	City, Ont.
Howes, J. S.	Harriston	Wellington, Ont.
Idington, P. S.	Stratford	Perth, Ont.
Jeffrey, J. S.	Toronto	City, Ont.
Johnston, J. F.	Ottawa.	City, Ont.
Kellogg, C. A.	Thamesville	Kent, Ont.
Kellogg, W. J.	Thamesville	Kent, Ont.
King, R. E.	Decewsville	Haldimand, Ont.
Knowlton, S. M.	Newboro'	Leeds, Ont.
Lea, H. F.	Toronto	City, Ont.
Leavens, D. H.	Belleville.	Hastings, Ont.
Leadingham, A. M.	Turriff, Aberdeen	Scotland.
Leslie, J. P.	Georgetown	Halton, Ont.
Lick, E.	Oshawa	Ontario, Ont.
Livesey, E. M.	London	England.
Lyster, G. R.	Guelph	City, Ont.
Macfarlane, A. D.	Wallace	Nova Scotia.
Macdonald, P.	Caughnawaga	Quebec.
Madge, R. W.	Brucefield	Huron, Ont.
March, H.	Rochdale	England.
Marsh, G. F.	Thornbury	Grey, Ont.
McCallum, E. G.	Mantintown	Glengarry, Ont.
McIntosh, W. W.	Toronto	City, Ontario.
McKay, J. G.	Underwood	Bruce, Ont.
McKenzie, A. G.	Fairview	Oxford, Ont.
McLean, R. M.	Ottawa.	City, Ont.
McNiven, W.	Mountsbury	Wentworth, Ont.
Meikle, W. F.	Morrisburg.	Dundas, Ont.
Menzies, R. M.	Almonte	Lanark, Ont.
Mill, J. S.	Maria, Bonaventure	Quebec.
Miller, J. R.	Cow Bay	Cape Breton.
Moodie, J. W.	Toronto	City, Ont.
Morgan, J. H. A.	Kerwood	Middlesex, Ont.
Morrison, W. S.	Minden	Haliburton, Ont.
Muir, J. B.	North Bruce.	Bruce, Ont.
Mutton, F. A.	Toronto	City, Ont.
Nelles, S. W.	York.	Haldimand, Ont.
Notman, C. R.	Toronto	City, Ont.
Orsman, C. P.	Bathurst	Lanark, Ont.
Owen, W. H.	Hull	England.
Pady, W. J.	Barstaple, Devon	England.
Palmer, W. J.	Charlottetown	Prince Edward Island.
Paterson, B. E.	Ottawa.	City, Ontario.
Paterson, J. W.	Constantinople	Turkey.
Poe, J. P.	Callan	Ireland.
Power, R. H.	Barrie	Simcoe, Ont.
Price, V.	Selby Oak, near Birmingham	England.
Rayden, J. S.	Charlottetown	Prince Edward Island.
Renfrew, W. C.	Quebec	City, Q.
Ritchie, H.	Toronto	City, Ont.
Robertson, D.	Kireudbright	Scotland.
Robson, J. W.	Liverpool	England.
Roome, H.	London	England.

COLLEGE ROLL—*Concluded.*

NAMES.	NAMES.	COUNTY, Etc.
Ross, J.	Whitechurch	Bruce, Ont.
Routhier, J. A.	Ottawa	City, Ont.
Rowen, M. B.	Holt	York, Ont.
Serson, W. E.	Antrim	Carleton, Ont.
Schofield, E. A.	St. John	New Brunswick.
Scott, J. A.	Stoke, Devonport.	England.
Scringham, J. G.	Toronto	City, Ont.
Shantz, A.	Waterloo	Waterloo, Ont.
Sharman, H. B.	Stratford	Perth, Ont.
Shirreffs, G. G.	Clarence	Russell, Ont.
Sinclair, J. J.	Ridgetown	Kent, Ont.
Sleightholm, F.	Humber	Peel, Ont.
Smithers, A. S.	Montreal	City, Q.
Somerville, A. R.	Huntingdon	Quebec.
Soules, R. M.	South End	Welland, Ont.
Steacy, M. W.	Warburton	Leeds, Ont.
Stewart, J. B.	Peterborough	Peterborough, Ont.
Stewart, R.	Ottawa	City, Ont.
Stubbs, H. C.	Liverpool	England.
Sturge, E.	Penzance, Cornwall	England.
Sullivan, R.	Dublin	Ireland.
Sweet, H. R.	Selby	Lennox, Ont.
Taylor, F. O.	Clifton, Bristol	England.
Thompson, F. F.	Uxbridge	Ontario, Ont.
Valance, R.	Osnabrock Centre	Stormont, Ont.
Van Luven, R. M.	Murvale	Frontenac, Ont.
Walter, J. R.	Wellington, Somerset	England.
Warner, F. C.	Decewsville	Haldimand, Ont.
Watts, W. G.	Dockenfield, Surrey	England.
White, S. A.	Ottawa	City, Ont.
Wiggins, G. C.	Windsor	Nova Scotia.
Willans, T. B.	Leeds	England.
Willans, N.	Leeds	England.
Williams, J. B.	Guelph	City, Ont.
Wilmot, A. B.	Oromocto	New Brunswick.
Zavitz, C. A.	Coldstream	Middlesex, Ont.

ANALYSIS OF ROLL.

Counties, etc.	Students.	Counties, etc.	Students.
Brant	2	Ireland	4
Bruce	5	Island of Jersey	1
Carleton	3	Kent	3
Cape Breton	1	Lambton	1
Dufferin	1	Lanark	2
Dundas	2	Leeds	1
England	25	Lennox	2
Frontenac	1	London	2
Glengarry	1	Lincoln	1
Grey	2	Middlesex	3
Guelph	4	New Brunswick	3
Haldimand	3	Norfolk	2
Halliburton	1	Northumberland	2
Hamilton	1	North-West Territory	2
Halton	1	Nova Scotia	4
Hastings	1	Ontario (County)	4
Huron	2	Ottawa	7

ANALYSIS OF ROLL—*Concluded.*

Counties, etc.	Students.	Counties, etc.	Students.
Oxford	1	Stormont	1
Peel	1	Toronto	11
Perth	2	Turkey	1
Peterborough	4	Waterloo	1
Prince Edward (County)	1	Welland	1
Prince Edward Island	2	Wellington	2
Quebec	8	Wentworth	1
Russell	3	York	2
Scotland	4		
Simcoe	1		149
Ontario Students			94
Non-residents			55
Ontario Counties represented			36

RELIGIOUS DENOMINATIONS.

The College is patronized by members or adherents of nearly all the religious organizations in the Province. Last year there were eleven denominations represented in our class-lists, as follows :—

Presbyterians	47	Roman Catholics	3
Episcopalians	43	Bretheren	2
Methodists	29	Friends	2
Congregationalists	8	Menonite	1
Baptists	7		
Christians	4	Total	149
Protestants	3		

CLASS-ROOM WORK.

Lectures began, as usual, on the 1st October, 1885, and continued till the 30th June, 1886, which latter date was the end of the scholastic year, 1885-86.

The following syllabus of lectures will convey some idea of the field covered by the several Professors in the nine months just mentioned :—

FIRST YEAR.

Fall Term—1st October to 22nd December.

DEPARTMENT 1.—AGRICULTURE.

Introductory.—Ancient and modern agriculture ; agricultural literature ; different kinds of farming.

Soils.—Natural conditions of soil and plant ; examination and classification of soils ; physical properties of each kind.

Rotation in Cropping.—Importance and necessity of rotation ; principles underlying it ; rotations suitable to different kinds of soil ; examination and criticism of different system of rotation.

Buildings.—Location of house, barn and stables; stables for horses, sheep and cattle arrangement of farm buildings.

Miscellaneous.—Roads, lanes, fences.

DEPARTMENT 2.—NATURAL SCIENCE.

Chemical Physics.—Matter; accessory and essential properties of matter; attraction; various kinds of attraction—cohesion, adhesion, capillary, electrical, and chemical; specific gravity; weights and measures; heat, measurement of heat, thermometers, specific and latent heat; sources, nature and laws of light.

Inorganic Chemistry.—Scope of subject; elementary and compound substances; chemical affinity; symbols; nomenclature; combining proportions by weight and by volume; atomic theory; atomicity and basicity; oxygen and hydrogen; water—its nature, functions, decomposition and impurities; nitrogen; the atmosphere—its composition, uses, and impurities; ammonia—its sources and uses; nitric acid and its connection with plants.

Human Physiology and Hygiene.—Description of the different tissues in the body; alimentary system; circulatory system; nervous system; importance of ventilation and the influence of food on the body; remarks on the proper care of the body and attention to its surroundings in order to keep it in a continual state of health.

Zoology.—Distinctions between animate and inanimate objects; distinctions between plants and animals; basis and classification among animals; leading characters of each sub-kingdom, with special reference to classes of animals connected with agriculture.

DEPARTMENT 3.—VETERINARY SCIENCE.

Anatomy and Physiology of the horse, ox, sheep and pig; osseous system, muscular system, syndesmolgy, plantar system and odontology.

DEPARTMENT 4.—ENGLISH.

Composition.—The sentence, paragraph, and period; capitals and punctuation. Exercises in composition.

English Classics.—Critical study of Coleridge's "Ancient Mariner."

DEPARTMENT 5.—MATHEMATICS.

Arithmetic.—Review of subject, with special reference to farm accounts. Interest, discount, stocks, and partnership.

Mental Arithmetic.—Calculations in simple rules.

Book-keeping.—Subject commenced.

FIRST YEAR—(Continued).

Winter Term—22nd January to 16th April.

DEPARTMENT 1.—AGRICULTURE.

Breeding, rearing and feeding of animals. Points to be considered in deciding what kind of animals to keep.

Cattle.—History and characteristics of {Shorthorns, Herefords, Aberdeen-Angus Polls, Ayrshires, Jerseys, Guernseys, Holsteins, Devons, Galloways, etc.; grade cattle; milch cows—points of a good milch cow; breeding generally; pedigree.

Sheep.—Breeds of sheep generally considered ; crosses between different breeds compared ; quality, quantity, and uses of different kinds of wool.

DEPARTMENT 2.—NATURAL SCIENCE.

Inorganic Chemistry (Continued).—Carbon ; combustion ; carbonic acid and its relation to the animal and vegetable kingdom ; sulphur and its compounds ; manufacture and uses of sulphuric acid ; phosphorus ; phosphoric acid and its importance in agriculture ; chlorine—its bleaching properties ; bromine ; iodine ; silicon ; potassium ; calcium ; magnesium ; iron, etc.

Organic Chemistry.—Constitution of organic compounds ; alcohols, aldehydes, acids, and their derivatives ; formic, acetic, oxalic, tartaric, citric, lactic, malic, uric and tannic acids. Constitution of oils and fats—saponification ; sugars, starch, cellulose ; albuminoids, or flesh formers and their allies ; essential oils ; alkaloids—morphine and quinine ; classification of organic compounds.

Zoology (Continued).—Sub-kingdoms further described ; detailed account of some injurious parasites, such as “liver fluke,” “tapeworm,” “trichina,” etc. ; insects—their influence on plant life ; corals and mollusks as agents in the formation of soil ; vertebrates, with special reference to those of importance in the economy of the farm.

Lectures illustrated by specimens and diagrams.

DEPARTMENT 3.—VETERINARY SCIENCE.

Veterinary Anatomy.—Anatomy and physiology of the horse, ox, sheep, and pig—digestive system, circulatory system, respiratory system, urinary system, nervous system, sensitive system, generative system, tegumental system.

DEPARTMENT 4.—ENGLISH.

Composition.—Exercises continued ; abstracts of speeches and essays ; letter writing.

English Classics.—Committing to memory and critical study of Goldsmith's “Traveller.”

DEPARTMENT 5.—MATHEMATICS AND BOOK-KEEPING.

Arithmetic.—Equation of payments ; percentage ; profit and loss ; stocks ; partnership ; exchange.

Book-keeping.—Business forms and correspondence ; general farm accounts ; dairy, field and garden accounts.

FIRST YEAR—(Continued).

Spring Term—17th April to 30th June.

DEPARTMENT 1.—AGRICULTURE.

Preparation of Soil.—Modes of preparation for different crops, and various kinds of soil.

Seeds and Sowing.—Testing the quality of seed ; changing seed ; quantity per acre ; methods of sowing.

Improvement of Lands.—Drainage ; ordinary cultivation ; subsoiling ; fallowing ; manuring. Farm-yard manure and management of the same ; the properties, application, and uses of special fertilizers—lime, plaster, salt, bone-dust, superphosphates, etc.

Roots.—Cultivation of roots and tubers—effects of each kind on soil.

Green Fodders.—The cultivation and management most appropriate for each.

Management of pastures ; harvesting and preparing crops for market, or one's own use ; crops for current year examined.

DEPARTMENT 2.—NATURAL SCIENCE.

Geology.—Connection between geology and agriculture ; classification of rocks—their origin and mode of formation, changes which they have undergone after deposition ; fossils—their origin and importance ; geological periods and characteristics of each.

Geology of Canada ; with special reference to the nature and economic value of the rock deposits ; glacial period and its influence on the formation of soil.

Lectures illustrated by numerous specimens and diagrams.

Botany.—Full description of the seed, roots, stem, leaves and flower. Plants are brought into the lecture-room and analyzed before the class so as to render students familiar with the different organs and their use in the plant economy.

Lectures also illustrated by excellent diagrams.

DEPARTMENT 3.—VETERINARY SCIENCE.

Materia Medica.—The preparation, doses, action, and use of about one hundred of the principal medicines used in veterinary practice.

DEPARTMENT 4.—ENGLISH.

English Classics.—Committing to memory and critical study of Wordsworth's "Excursion," Book I.

DEPARTMENT 5.—MATHEMATICS.

Mensuration.—Mensuration of surfaces—the square, rectangle, triangle, trapezoid, regular polygon, circle. Special application to the measurement of lumber. Mensuration of solids ; special application to the measurement of timber, earth, etc.

SECOND YEAR.

Fall Term—1st October to 22nd December.

DEPARTMENT 1.—AGRICULTURE.

Experimental Plots.—The results of last season's experiments with crops and animals ; liability to disease ; effects of various manures on different crops, etc.

Farm Management.—Detailed account of the treatment of each field ; results from different kinds of seed and soil ; effects of manure ; harvesting, storing, and threshing of crops ; fall ploughing, subsoiling, etc.

Stock Feeding.—Value of feeding materials ; estimate for winter keep of live stock ; housing, feeding, and fattening ; points to be observed in selecting animals for fattening ; feeding experiments ; common diseases of animals ; management of animals on pasture ; value of green fodder. Dairy management and cheese-making.

DEPARTMENT 2.—NATURAL SCIENCE.

Agricultural Chemistry.—Connection between chemistry and agriculture ; the various compounds which enter into the composition of the bodies of animals ; the chemical changes which food undergoes during digestion ; chemical changes which occur during the

decomposition of the bodies of animals at death ; the functions of animals and plants contrasted ; food of plants, and whence derived ; origin and nature of soils ; classification of soils ; causes of unproductiveness in soil and how detected ; preservation, development, and renovation of soils ; manures classified ; the chemical action of manures on different soils ; commercial valuation of fertilizers.

Horticulture.—Ontario as a fruit-growing country ; the natural divisions into which it may be divided for growing fruit ; detailed account of the operations, layering, grafting, budding, pruning, etc. ; laying out and cultivation of an orchard ; list of fruits best suited for general purposes, with best methods for their cultivation ; remarks on gardening as a source of profit ; plants best adapted for the purpose of bedding and potting.

Lectures illustrated by practical work in the garden and specimens in the class-room.

DEPARTMENT 3.—VETERINARY SCIENCE.

Pathology.—*Osseous System*.—Nature, causes, symptoms, and treatment of diseases of bone, as splint, spavin, ringbone, etc.

Muscular System.—Nature, causes, and treatment of flesh wounds, etc.

Syndesmology.—Nature, causes, symptoms, and treatment of curb, bog-spavin, and other diseases of the joints.

Plantar System.—Nature, causes, symptoms, and treatment of corns, sand-crack, founder, and other diseases of the feet.

Odontology.—Diseases of the teeth and treatment of the same.

DEPARTMENT 4.—ENGLISH.

English Classics.—Critical study of Shakespeare's "Julius Cæsar."

DEPARTMENT 5.—MATHEMATICS.

Dynamics.—Motion, forces producing motion, momentum ; work ; the simple machines, etc.

Drainage.—General principles ; how to lay out a system of drains ; how, where, and when to commence draining ; depth of drains and distances apart ; grades ; cost of draining.

SECOND YEAR—(Continued).

Winter Term—22nd January to 16th April.

DEPARTMENT 1.—AGRICULTURE.

Capital required in farming ; laying out of farms ; general management and economy ; cost of production ; buying, selling and marketing.

Management of cattle, sheep, and other animals in winter ; breeding generally considered ; special management of ewes before, during, and after the season of lambing, treatment of other animals in parturition ; rearing of lambs, calves and pigs ; washing and dipping of sheep, etc., etc.

Arboriculture.—Importance of the subject, and its special application to North America ; what is being done in the conservation and replanting of forests in other countries ; the objects of conserving and replanting—shelter for crops, animals, and dwellings, regulation of temperature and rain-fall, ornament, and profit ; requisite proportions of tree surface to that under agricultural crops ; existing condition of forests in

North America; adaptability of soils and climate to rapid results; what parts of the country should be conserved, and what parts replanted; conservation of indigenous forests generally considered; special attention to the care of young natural forest trees.

DEPARTMENT 2.—NATURAL SCIENCE.

Agricultural Chemistry.—Continuation of the subject from preceding term, as follows: Composition of plants in relation to the soils upon which they grow; rotation of crops; the classification of fodders according to their chemical composition and a general treatment of the science of cattle feeding; relation of feeding to manure; chemistry of the dairy.

Entomology.—Importance of the subject to agriculturists; beneficial and injurious insects—their habits, and the best means of checking the ravages of the latter.

Lectures illustrated by specimens.

Meteorology.—Relation of Meteorology to agriculture; composition and movements of the atmosphere; description of the barometer, different kinds of thermometers, pluviometer, anemometer, and how to read them; temperature, its influence on agriculture; the elements which are to be considered in the discussion of climate; the principles considered in forecasting the weather.

Lectures illustrated by instruments referred to.

DEPARTMENT 3.—VETERINARY SCIENCE.

Digestive System.—Nature, causes, symptoms and treatments of spasmodic and flatulent colic, inflammation of the bowels, acute indigestion, tympanitis in cattle, impaction of the rumen, and many other common diseases.

Circulatory System.—Description of the diseases of the heart and blood.

Respiratory System.—Nature, causes, symptoms and treatment of catarrh, nasal-gleet, roaring, bronchitis; pleurisy and inflammation of the lungs, etc.

Urinary System.—Nature, causes, symptoms, and treatment of inflammation of the kidneys, etc.

Nervous System.—Nature, causes, symptoms, and treatment of lock-jaw, string-halt, etc.

Sensitive System.—Nature, causes, symptoms, and treatment of the diseases of the eye and ear.

Generative System.—Nature, causes, symptoms, and treatment of abortion, milk-fever, etc.

Tegumental System.—Nature, causes, symptoms, and treatment of scratches, sallenders, mallenders, parasites, and other diseases of the skin.

DEPARTMENT 4.—ENGLISH LITERATURE AND POLITICAL ECONOMY.

English Classics.—The critical study of Shakespeare's "King Richard the Second."

Political Economy.—Utility; production of wealth—land, labour, capital; division of labour; distribution of wealth; wages; trades-unions; co-operation; money; credit, credit cycles; functions of government; taxation, etc.

DEPARTMENT 5.—MATHEMATICS.

Statics.—Theory of equilibrium; composition and resolution of forces; parallelogram of forces; moments; centre of gravity, etc.

Hydrostatics.—Transmission of pressure; the hydraulic press; specific gravity; density; pumps, siphons, etc.

Book-keeping.—Review of previous work.

SECOND YEAR—(Continued).

Spring Term—17th April to 30th June.

DEPARTMENT 1.—AGRICULTURE.

Review of past lectures with special drill on outside work. Reasons for management, etc.

DEPARTMENT 2.—NATURAL SCIENCE.

Determination of soils and fertilizers by physical properties.

Analytical Chemistry.—Chemical manipulation, preparation of common gases and reagents; operations in analysis—solution, filtration, precipitation, evaporation, distillation, sublimation, ignition, and the use of the blow-pipe; testing of substances by reagents; impurities in water; adulteration in foods and artificial manures; injurious substances in soils.

Systematic and Economic Botany.—Classification of plants, and characters of the most important orders.

This course is illustrated by a large collection of plants in the college herbarium; and also by analysis of several plants collected in the fields and woods of the farm.

Green-house Plants.—Special study of all the plants grown in our green-houses, and the shrubs, etc., on lawn.

DEPARTMENT 3.—VETERINARY SCIENCE.

Materia Medica.—The preparation, actions, uses, and doses of medicines—continued from the spring term of the first year. Lectures on special subjects, such as pleuropneumonia, the rinderpest, tuberculosis, etc.

Veterinary Obstetrics.—Description of foetal coverings. Phenomena in connection with puberty, oestrus, gestation, sterility, abortion, normal and abnormal parturition. Diseases incidental to pregnant and parturient animals.

DEPARTMENT 4.—ENGLISH.

English Classics.—The critical study of Milton's "L'Allegro" and "Il Penseroso."

DEPARTMENT 5.—MATHEMATICS.

Surveying and Levelling.—Fields surveyed with chain and cross-staff; measurements of heights.

Road Making.—Determination of proper slopes; shape of road bed; drainage of roads; friction on different roads; various road coverings; the maintenance of roads; cost, etc.

FARMERS' INSTITUTES.

This is an age of associations and conventions. People seem to realize more than ever that union is strength and that combination is the most effective means of securing desired results in times of keen competition and aggressive enterprise.

Every trade and profession has some sort of representative organization which meets periodically for an interchange of opinion and for the discussion of matters which affect its rights, privileges, and standing in the community. The lawyers have their society, the doctors their association, and the Knights of Labor their union. These all have definite and specific objects in view, and among the secondary aims and incidental results are social enjoyment, mental improvement, and some advancement in technical knowledge.

Farmers, in this country at least, have never succeeded in forming an association to represent them as a class. The Grange organization was intended to do so; but there

are certain things about it which have made it distasteful to many, and obnoxious to some. Hence it has not received the support of farmers generally, and cannot be said to represent more than a small section of the farming community.

Farmers' Institutes are not intended to be in any way representative of agriculturists as a class. They are merely local groupings of farmers for the purpose of comparing notes, giving the results of experience, and reading and discussing papers on agriculture, live stock, dairying, fruit-growing, forestry, and other topics in which the farmers of each locality are specially interested.

Quite a number of such Institutes were held by the farmers of Ontario last year. The Professors of the College assisted in holding twenty-six; and in every case their efforts seemed to be appreciated and I have no doubt will be productive of much good. The farmers engaged very heartily in the work of preparing and reading papers,—took a leading part in the discussions, and appeared anxious to gain information about the minutest details of successful farming.

The plan on which we proceed is as follows: The farmers themselves organize Institutes according to instructions issued by the Commissioner of Agriculture, and hold at least two meetings in the year; and the Professors of the College assist at these meetings as often as they can do so, during the Christmas vacation, i. e., from the 22nd December to the 22nd January.

Each Institute occupies about a day and a half, commencing at half-past one o'clock the first day and continuing till some time in the afternoon of the second day. In the evening of the first day, there is a public meeting at which the entertainment consists of music and short addresses.

The Government pays the travelling expenses of the Professors; and the locality in which the Institute is held provides a place of meeting and pays for heat, light, and local advertising.

The following list contains the names of the twenty-six places at which we assisted in holding Institutes last year: Newmarket (York), Collingwood (Simcoe), Lindsay (Victoria), Bobcaygeon (Victoria), Almonte (Lanark), Renfrew (Renfrew), Iroquois (Dundas), Gananoque (Leeds), Belleville (Hastings), Picton (Prince Edward), Brighton (Northumberland), Oshawa (Ontario), Georgetown (Halton), Drayton (Wellington), Durham (Grey), Markdale (Grey), Owen Sound (Grey), Brussels (Huron), Seaforth (Huron), Simcoe (Norfolk), St. Thomas (Elgin), Thamesville (Kent), Wanstead (Lambton), London (Middlesex), Brantford (Brant), St. George (Brant).

WINTER TERM, 1886.

23rd January to the 16th April.

The students in attendance were those who had entered at the beginning of the Fall Term in October, 1885, or previous to that date—91 in number; and the work was to a large extent a continuation of the subjects begun at that time.

CLASS-ROOM WORK.

The term was ten weeks and three days long, exclusive of the time spent in the Easter examinations; and the lectures delivered were as follows:—

First Year.—31 lectures, one hour each, on Agriculture and Live Stock.

31	"	"	Chemistry.
20	"	"	Natural History.
21	"	"	Veterinary Anatomy.
20	"	"	English Literature.
10	"	"	English Composition.
29	"	"	Arithmetic and Book-keeping.

Second Year.—15 lectures, one hour each, on Agriculture and Live Stock.

6	"	"	Arboriculture.
31	"	"	Agricultural Chemistry.
11	"	"	Entomology.
21	"	"	Political Economy.
20	"	"	English Literature.
21	"	"	Veterinary Pathology.
21	"	"	Statics, Hydrostatics, and Book-keeping.

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Also one hour a week was spent by the second year students in the practical handling and judging of horses, under the supervision of Dr. Grenside, our Veterinary Surgeon.

DEPARTMENT 1.—AGRICULTURE AND LIVE STOCK.

In this department, the first year students devoted three hours a week to the study of the characteristic points and peculiarities of the leading breeds of sheep and horses ; and the second year men spent six hours on general agriculture, six hours on arboriculture, and eleven hours in handling, judging, and comparing the different breeds and varieties of sheep and cattle. Under the last head, the method of instruction was the same as usual, and may be described as follows :—

A specimen of some kind, say a Shorthorn steer, is brought into the lecture-room, which is so arranged with galleried seats that every student while in his place taking notes has a full view of the lecturer and all his movements. The different parts of the animal are first pointed out and named, such for example, as the brisket, crops, loins, twist, etc. After this has been several times repeated, the students are called on to point out and name the several parts in presence of their class-mates. The lecturer then criticises the animal more closely, indicating the strong and the weak points, and giving his estimate of it as a whole. Afterwards several animals of different breeds are brought in together, and he proceeds to describe and illustrate what are considered the good points of the animals for beef and milk, comparing and contrasting Shorthorns, Herefords, Polled Angus, Devons, Galloways, Ayrshires, Holsteins, Guernseys, and Jerseys, breed with breed, in regard to shape of frame, quality of flesh, feeding, fattening, milking, hardiness, and other properties. Much the same course is pursued with the different breeds of sheep. Cotswolds, Leicesters, Lincolns, Southdowns, Oxford Downs, Shropshire Downs, Hampshire Downs, and Merinos, are frequently examined in the class-room and compared with one another as regards carcass, constitution, wool, mutton, feeding, hardiness, etc. Thus the instruction in this department is made in the strictest sense definite and practical.

DEPARTMENT 2.—NATURAL SCIENCE.

The work of the Winter Term in the department of Natural Science embraces Inorganic, Chemistry, Organic Chemistry, Zoology, Agricultural Chemistry, and Entomology.

In the winter of 1886, our first year students spent a few weeks in completing the Inorganic Chemistry which they had studied throughout the Fall Term, and then took up the more difficult, but no less interesting subject of Organic Chemistry. They had a course of lectures from Professor James on the most important organic compounds, and gave special attention to the nature and sources of starch, sugar, oils, fats, the albuminoids, or flesh-formers, and other substances which have a more or less direct bearing on general agriculture and the feeding of animals. At the same time they attended Professor Pantton's lectures on Zoology, to get a general knowledge of the animal kingdom as a whole, and thereby fit themselves for becoming more intelligent and appreciative students of particular parts of that kingdom under the heads of Entomology and Veterinary Science.

The second year men were at the same time engaged in the study of Agricultural Chemistry and Entomology. During the previous term they had learned the relation of

Chemistry to Agriculture and Stock-raising ; and with this knowledge they now proceeded to study the nature and sources of plant food, the origin and properties of the different kinds of soil, their preservation and renovation, the causes of unproductiveness, the properties and uses of various manures, the chemical composition of a number of fodders, and the nutritive value of each. On subjects such as these they spent three hours a week ; and at the same time took a course of lectures delivered by the Professor of Natural History, on the marks, habits, and depredations of the principal insects that infest our crops and fruits, seeking especially to learn the best means of checking and preventing their ravages.

DEPARTMENT 3.—VETERINARY SCIENCE.

As will be seen from the syllabus of lectures given on a previous page, the Winter Term in the Veterinary Department is devoted to the anatomy, physiology, and pathology of the horse, ox, sheep, and pig. The lectures to the first year students were on the anatomy and physiology of these animals, and were illustrated by the complete skeleton of a horse and portions of other skeletons. The second year lectures discussed various diseases and their treatment, especially the common ailments of the horse, as spavin, ringbone, curb, founder, inflammation, and such like ; and, for the purpose of making the instruction as practical as possible, horses were regularly brought into the class-room and examined, first by the professor in the presence of the class, and afterwards by the students themselves. In this way the veterinary surgeon was each day enabled to see whether his lectures were really understood or not by those to whom they were delivered.

See Professor Grenside's report in part IV of this volume.

DEPARTMENT 4.—ENGLISH LITERATURE AND POLITICAL ECONOMY.

We spend no time on any foreign language, and not much on anything which has not a direct bearing on the duties of a Canadian farmer. We give all the subjects of the programme a fair share of attention, but lay most stress on Agriculture, Live Stock, Chemistry, and Veterinary Science. Our primary aim is to make good practical farmers ; but we are not forgetful of the fact that it is no less important to make good citizens—to add some of the graces of a broader culture, and thereby fit our students for filling positions of trust, influence, and responsibility in Church and State.

The kind of an education which enables a man to make the most of his abilities in the social circle, the municipality, or the political arena, is got, not by confining the attention to any single subject, but by reading, writing and conversation, and from the sharpening and refining influence of many studies. At the same time, I think there is nothing else which contributes so much towards that end, and tends so directly to create and foster a taste for reading, as frequent practice in composition and the critical reading of selections from classic authors ; and for this reason we devote all the time we can spare to exercises of this kind.

During the Winter Term of 1886 the first year students spent one hour a week on exercises in composition, and two hours in the critical study of Goldsmith's "Traveller." The second year men read Shakespeare's "Julius Cæsar" and "King Richard the Second," and committed to memory the best passages in each. They also devoted two hours a week to the discussion of such questions as are usually considered under the head of Political Economy—land, labour, capital, the production and distribution of wealth, strikes, lockouts, etc.

DEPARTMENT 5.—MATHEMATICS AND BOOK-KEEPING.

Under this head, we have not undertaken anything beyond Arithmetic, Mensuration, Elementary Mechanics, and the less difficult operations in Levelling and Surveying. Even in these few branches, we lay most stress on what is likely to have frequent application in the ordinary business of a farming community. The Book-keeping also is of a special kind. It might be called Farm Book-keeping—farm, garden, field and dairy accounts.

SPECIAL LIVE STOCK AND VETERINARY CLASS.

A special class was organized in October, 1885, as in the three previous years, for those who wished to devote their whole time during the winter months to the study of live stock and veterinary science.

There were five applicants for this class—one new student and four from the regular course; but only three remained for the examinations at Easter.

Easter Examinations.

The Easter Examinations were, as usual, on the class-room work of the Winter Session (1st October to 16th April). They commenced on the 6th and ended on the 16th April. The questions set in the different subjects will be found in the first part of Appendix 2. Most of the papers were difficult enough to differentiate the best students, while they gave all honest students a chance to pass.

Oral examinations on live stock were conducted as usual. Cattle, sheep, and horses were taken into the Veterinary Class-room on successive days; and the students, being admitted one at a time, were required to handle and judge the animals submitted, as if they were in a show-ring.

EXAMINERS.

The examinations were conducted by the Professors of the College and the following outside gentlemen, to whom we are specially indebted and beg to return our sincere thanks:

John Hobson, Esq., Mosboro', Wellington	Stock-Breeding and Feeding.
S. C. Smoke, B.A., Toronto	English Literature.
Wm. Douglas, B.A., Toronto	Political Economy.

HONOURS.

A complete record of all the candidates, regular and special, will be found in the Class Lists (Appendix 3)—not only those who passed or won honours, but also those who failed. A fair proportion got first-class honours in individual subjects, and a few gained the rank of first-class men in one or more of the five departments, and received honour certificates, as follows:

Honour Certificates.

EASTER EXAMINATIONS, 1886.

First Year.

Agriculture and Live Stock—

Natural Science—1. Scrugham, J. G., Toronto; 2. Sleightholm, J., Humber, Peel, Ont.; 3. Lick, E., Oshawa, Ont.; 4. Craig, J. A., Russell, Ont.; 5. Donaldson, F. N. Tipperary, Ireland; 6. Pady, W. J., Barnstaple, England; 7. Orsman, C. P., Bathurst, Lanark, Ont.; 8. Hart, J. W., Bridgetown, N. S.; 9. Johnston, J. F., Ottawa.

Veterinary Science—1. Scrugham; 2. Lick; 3. Bishop, W. R., Brussels, Ont.; 4. Sleightholm; 5. King, R. E., Decewsville, Haldimand, Ont.

English Literature and Composition—1. Scrugham; 2. Donald, J. C., St. George, Ont., and Donaldson; 4. Sleightholm; 5. Hart; 6. Lick; 7. Ledingham, A. M., Turriff, Scotland; 8. Johnston; 9. Pady; 10. Morgan, J. H., Kerwood, Ont.

Mathematics and Book-Keeping—1. Scrugham; 2. Lick; 3. Marsh, G. F., Thornbury, Ont.; 4. Hart; 5. Orsman; 6. Harkness, A. D., Irene, Dundas, Ont.; 7. Sleightholm; 8. Donald; 9. Howes, J. S., Harriston, Ont.; 10. Pady.

Second Year.

Agriculture and Live Stock—1. Zavitz, C. A., Coldstream, Middlesex, Ont.; 2. Brown, C. R., Norwood, Peterborough; 3. Sturge, E., Penzance, England; 4. Madge, R. W., Brucefield, Ont.; 5. Owen, W. H., Hull, England.

Natural Science—1. Madge; 2. Sturge; 3. Brown; 4. Zavitz; 5. Owen; 6. Fee, J. J., Toronto.

Veterinary Science—1. Owen; 2. Sturge; 3. Madge; 4. Holtby, R. M., Manchester, Ont.; 5. Zavitz; 6. Walter, J. R., Somerset, England.

English Literature and Political Economy—1. Madge; 2. Sturge; 3. Owen; 4. Jeffery, J. S., Toronto; 5. Calvert, S., Rochdale, England; 6. Fee.

Mathematics and Book-Keeping—1. Brown; 2. Zavitz.

Prizemen.

CHRISTMAS AND EASTER EXAMINATIONS.

First Year.

Agriculture and Live Stock.

- 1st. { J. Sleightholm.
J. G. Scrugham,
2nd. J. W. Hart.

Natural Science.

- 1st. J. G. Scrugham.
2nd. J. Sleightholm.

Veterinary Science.

- 1st. E. Lick.
2nd. J. G. Scrugham.

English Literature and Composition.

- 1st. J. G. Scrugham.
2nd. J. F. Johnston.

Mathematics and Book-Keeping.

- 1st. J. G. Scrugham.
2nd. E. Lick.

General Proficiency.

- 1st. J. G. Scrugham.
2nd. J. Sleightholm.
3rd. E. Lick.

Second Year.

Agriculture and Arboriculture.

- 1st. C. A. Zavitz.
2nd. C. R. Brown.

Natural Science.

- 1st. R. W. Madge.
2nd. C. R. Brown.

Veterinary Science.

- 1st. W. H. Owen.
2nd. E. Sturge.

Eng. Lit. and Political Economy.

- 1st. R. W. Madge.
2nd. E. Calvert.

Mathematics and Book-Keeping.

- 1st. C. R. Brown.
2nd. C. A. Zavitz.

General Proficiency.

- 1st. R. W. Madge.
2nd. E. Sturge.
3rd. C. R. Brown.

Special Live Stock and Veterinary Class.

Silver Medal—J. R. WALTER, Wellington, Somerset, England.

SPRING TERM.

(17th April to 30th June.)

The members of the special class and some others left at Easter. Ten new students were admitted, and the routine continued inside and outside pretty much as during Winter Term.

The class-room work of the first year students embraced agriculture, geology, botany, veterinary materia medica, Wordsworth's "Excursion," and mensuration. That of the second year students included agriculture, analytical chemistry, systematic and economic botany, veterinary materia medica and obstetrics, Milton's "L'Allegro" and "Il Penseroso," and the outlines of levelling, surveying and road-making.

EXAMINATIONS.

The Midsummer Examinations on the work of the Spring Term began on the 16th and ended the 19th June, and immediately thereafter a number of the students, who were members of the Ontario Field Battery, went into camp on the Guelph Exhibition Grounds, after which they returned to the

CLOSING EXERCISES OF THE COLLEGE.

These exercises took place on the 30th June, and were unusually successful. The attendance was much larger than on any former occasion, and the interest throughout was all that could be desired.

Fifteen young men were presented for diplomas, which were granted by the Hon. A. M. Ross, Commissioner of Agriculture.

Messrs R. W. Madge and C. A. Zavitz, delivered valedictory addresses on behalf of the graduating class, and the medals were awarded as follows:

R. W. Madge....Brucefield, Ont.....Gold Medal.
 Edgar Sturge....Penzance, Cornwall, England..First Silver Medal.
 C. R. Brown....Norwood, Peterborough, Ont..Second Silver Medal.

The gold medal was presented by the Commissioner of Agriculture; the first silver medal, by James Innes, M. P.; and the second silver medal, by James Laidlaw, M. P.

The competition for the medals was keen as usual, and Messrs C. A. Zavitz and W. H. Owen may be mentioned as having come very close to the winner of the second silver medal.

Those who obtained an aggregate of 75 per cent. of the marks in any department were ranked first class and awarded honour certificates, as follows;—

Honour Certificates.

MIDSUMMER EXAMINATIONS, 1886.

First Year.

Agriculture and Dairying—1. J. G. Scrugham, Toronto; 2. E. Lick, Oshawa; 3. J. W. Hart, Bridgetown, N. S.; 4. W. Ewing, Mulmer, Ont., and W. H. A. Hart, Kerwood, Ont.; 6. T. N. Donaldson, Tipperary, Ireland.

Natural Science—1. R. E. King, Decewsville, Ont.; 2. Scrugham; C. W. Elton, London, England; 3. J. A. Craig, Russell, Ont.

Veterinary Science—1. Scrugham; 2. Hart; 3. King; 4. Lick; 5. J. Sleightholm, Humber, Ont.; 6. J. C. Donald, St. George, Ont.; 7. Craig.

English Literature—1. Scrugham; 2. Elton; 3. Donaldson and Hart; 5. Donald.

Mathematics—1. Lick and Scrugham; 3. Hart; 4. J. S. Howes, Harriston, Ont.; 5. R. DeMauritz, London, England; 6. W. J. Pady, Barnstaple, England; 7. King; 8. Sleightholm.

Second Year.

Agriculture and Dairying—1. C. R. Brown, Norwood, Ont.; 2. E. Sturge, Penzance, England; 3. R. W. Madge, Brucefield, Ont.; 4. C. A. Zavitz, Coldstream, Ont.

Natural Science—1. Madge; 2. Sturge; 3. Zavitz; 4. W. H. Owen, Hull, England.

Veterinary Science—1. Brown; 2. Sturge; 3. Madge; 4. Owen.

English Literature—1. Madge; 2. Owen; 3. Sturge; 4. S. Calvert, Rochdale, England; 5. Brown.

Mathematics—1. Madge and Zavitz.

Special Certificates in Live Stock and Veterinary Science were awarded to J. R. Walter, Wellington, Somerset, England; J. P. Poe, Callan, Ireland; and Hugh Craig, Carsonby, Ont.

Associates.

The total number of associates up to the present time is 117. The list is as follows:—

Date. A.

1880—Anderson, J.
1880—Ash, G. E.

B.

1881—Ballantyne, W. W.
1884—Black, P. C.
1882—Blanchard, M. G.
1879—Bannard, E. L.
1886—Broome, A. H.
1886—†Brown, C. R.
1885—†Butler, G. C.

C.

1886—Calvert, S.
1877—Campbell, J. A.
1880—Campbell, D. P. L.
1884—*Carpenter, P. A.
1880—Chapman, R. K.
1882—Charlton, G. H.
1882—Chase, O.
1879—Clark, J.
1879—Clinton, N. J.
1880—Clutton, A. H.
1886—Cobb, C.
1878—Crompton, E.

D.

1878—Davis, C. J.
1880—Dawes, M. A.
1882—Dawson, J. J.
1882—Dennis, J.
1881—Dickinson, C. S.
1877—Douglas, J. D.
1877—Dunlop, S.

E.

1882—Elworthy, R. H.

F.

1878—Farlinger, W. K.
1886—Fee, J. J.
1881—File, J.
1882—Fotheringham, J.
1883—†Fotheringham, W.
1879—Fyfe, A.

Date. G.

1883—Garland, C. S.
1879—Gillespie, G. H.
1878—Graham, D.
1879—Greig, G. H.
1881—Grindley, A. W.

H.

1882—Hallesay, F.
1886—Holtby, R. M.
1880—Holterman, R. F.
1882—Horne, W. H.
1882—Howitt, W.

I.

1886—Idington, P. S.

J.

1886—Jeffrey, J. S.
1883—Jeffs, H. B.
1879—Jopling, W.

L.

1882—Landsborough, J.
1884—†Lehmann, A.
1877—Lindsay, A. J.
1880—Lomas, J. W.
1878—Logan, T.

M.

1880—Macaulay, H.
1885—Macpherson, A.
1886—*Madge, R. W.
1882—Mahoney, E. C.
1884—Major, C. H.
1877—Mason, T. H.
1885—McIntyre, D. N.
1885—McKay, J. B.
1886—McKay, J. G.
1883—McPherson, D.
1877—Meyer, G. W.
1881—Motherwell, W. R.
1885—†Muir, J. B.

N.

1878—Naismith, D. M.
1879—Nicol, A.
1882—Nicol, G.
1886—Notman, C. R.

* Gold Medallist. † First Silver Medallist. ‡ Second Silver Medallist.

*Associates—Continued.**Date.* **O.**

1877—O'Beirne, A. C.
1886—Owen, W. H.

P.

1883—Perry, D. E.
1881—*Phin, R. J.
1881—Phin, W. E.
1881—Pope, H.
1886—Power, R. M.
1884—Powys, P. C.

R.

1882—§Ramsay, R. A.
1879—Randall, J. R.
1885—†Raynor, T.
1885—Reid, P.
1883—†Robertson, W.
1879—Robertson, J.
1881—Robins, W. P.
1879—Robinson, C. B.
1881—Ross, J. G.

S.

1884—Saxton, E. A.
1883—Schwartz, J. A.
1877—Shaw, G. H.
1882—†Shuttleworth, A.
1882—Silverthorne, N.
1884—†Slater, H.

Date. **S.**

1885—Smith, E. P.
1884—Steers, O.
1878—Stewart, W.
1882—Stover, J. W.
1886—†Sturge, E.
1877—Sykes, W. J.

T.

1885—Thompson, W. D.
1879—Toole, L.
1883—Torrance, W. J.
1884—Tucker, H. V.

W.

1879—Warnica, A. W.
1884—Wark, A. E.
1878—Warren, J. B.
1880—*Webster, J. L.
1879—Wells, C.
1882—†Wettlaufer, F.
1882—White, C. D.
1879—White, G. P.
1879—Wilkinson, J. P.
1879—Willis, J.
1883—†Willis, W. B. (Ob.)
1884—Wroughton, T. A.

Z.

1886—Zavitz, C. A.

* Winner of Governor-General's Medal.

† Gold Medallist.

‡ First Silver Medallist.

§ Second Silver Medallist.

SUMMER TERM.

(1st July to 31st August).

At the close of the Spring Term (30th June), when the year's lectures were ended, most of the farmers' sons went home for haying and harvest, and some of the other students hired out with farmers for the summer months; so that only twenty-five remained with us during the Summer Term (July and August). These worked nine and a half hours a day, giving more or less attention to all the departments, but spending the greater part of their time where it was most needed, *i. e.*, on the farm. I shall not attempt to give a detailed account of the routine in each department, but simply say that the young men received more or less instruction in the fields, the yards, the garden, and the shop; and assisted in doing all there was to do in the summer months, on a four hundred-acre grain and stock farm, and in the management of a large vegetable garden, flower garden, orchard, and lawn.

FALL TERM.

COMMENCEMENT OF A NEW SCHOLASTIC YEAR—1st October, 1886.

Thirty-eight old students returned at the beginning of the Fall term, and forty-five new ones were admitted, making a total of 83. Their names, post-office address, and other information regarding them having been given in the college roll and the analysis on a previous page, there is only one or two particulars which need be mentioned under this head.

AGE OF STUDENTS. .

The ages of our students in the Fall Term of 1886, ranged from 16 to 28 years, as follows:—

6 at the age of 16 years.			9 at the age of 22 years.		
7	"	17 "	4	"	23 "
11	"	18 "	1	"	24 "
21	"	19 "	2	"	25 "
12	"	20 "	1	"	28 "
8	"	21 "			

The average age was $19\frac{3}{4}$ years.

CLASS-ROOM WORK.

The time table in Appendix I. indicates the subjects which were taken up in the Fall Term, and the number of hours allotted to each. Lectures began on the 4th October, and continued without interruption till the 17th December.

The first-year students received four lectures a week on the characteristic points and peculiarities of the different breeds of cattle; had a course of lectures with experiments on Chemical Physics and Inorganic Chemistry; and spent two hours a week in studying the Anatomy and Physiology of the horse. Under the head of English and Mathematics, they read Thomson's "Seasons"—"Autumn," and reviewed certain portions of Arithmetic, with special reference to the requirements of farming in Canada.

The attention of the second-year men was directed to such subjects as stock-breeding, farm management, and the experimental plots; the selection of animals for beef; the housing, feeding, and fattening of the same; the comparative values of pastures and green fodder; results from the different kinds of seed, soil, and manures; and the previous season's experiments with wheat, oats, and grasses. They had two lectures a week on Horticulture, and a full course on Agricultural Chemistry—the composition of different plants in relation to the soils on which they grow, the preservation and renovation of soils, the chemical composition and value of different manures, the superphosphates, double silicates, and other substances which furnish plant food. They spent two hours a week at lectures on Veterinary Pathology, and one in handling and examining horses for spavin, ring-bone, splint, founder, and other diseases, all under the eye and direction of our veterinary surgeon, Dr. Grenside; they also read Shakespeare's "Julius Cæsar," and devoted some time to the study of drainage and book-keeping.

BOARDING HOUSE AND COLLEGE BUILDINGS.

The work in this department embraces the heating, lighting, cleaning, and repairing of the College buildings, and the boarding and oversight of the students in the College.

The College is heated by steam, lighted by gas from Guelph, and supplied with water from the city water-works. The supply of the two latter is quite satisfactory, and the steam heating serves the purpose well, except in very cold weather, when the radiators in the halls do not keep the rooms on each side quite so warm as they should be for the comfort of persons engaged in study.

The bursar provides the supplies, the culinary departments under the supervision of the Matron, and the students are looked after by the assistant Resident Master, with some help from two of the Professors.

ADDITIONS TO BUILDINGS.

Last year I called attention to the fact that the coal shed connected with the College was not large enough to hold more than half of our year's supply of coal. Consequently a large part of it was exposed to rain and snow throughout the fall and winter. During the past summer an addition was made to the shed, and we now have ample room for all the coal that we require.

In regard to the surroundings of students in the College, and the duties required of them, I may say that their rooms are furnished with beds, bedding (except sheets), bureaus, mirrors, washstands, study tables, and chairs. They sleep separately, two in a room, and, in a few instances, three.

DAILY ROUTINE.

The daily routine during the Fall, Winter, and Spring Terms, is as follows :—

Twelve students, selected in rotation, go out at six in the morning to feed the cattle and sheep, clean stables, etc. The rest are called at six, and go to breakfast at half-past six. At 7.30, those who are not working outside, go to drill for an hour. All assemble in the class-room for roll-call and prayers at 8.30 ; and from 8.45 to 11.45, they are at lectures in the College.

For the afternoon, the entire number is divided into two equal divisions, which work and study alternately. One division goes out to work from 1.30 till tea time ; and the other reads or studies under a Professor in the class-room from 1.30 to 4, after which they are free till the call for tea at 5.30 or 6, according to the season of the year.

From seven to half-past nine in fall and winter, and from eight to half-past nine in spring, they all study in their rooms under the supervision of the night watchman and one of the Professors. Lights are put out at ten and the doors closed at half-past ten.

The half of every Saturday is a holiday ; and every student, who is not under ban for some misdemeanor, is allowed to be out one evening in the week till half-past ten. When going out, each student leaves his name with the master or professor in charge, and is required to report himself when he returns.

On Sunday morning all students are required to attend their respective places of worship in Guelph, unless they are excused by the President. In the evening it is optional whether they go or stay in the College.

Such is the routine in the boarding house, and such are the duties which are required of students therein during nine months of the year. The Summer Term (July and August) is devoted entirely to work in the outside departments. Those who remain with us for that term, work nine and a half hours a day outside ; and the duties inside differ but little from those in an ordinary boarding house on a large scale.

DISCIPLINE.

I am pleased to be able to say that we have not had any serious case of discipline during the past year. Everything has gone on quietly and without the slightest friction. All the students have been respectful and obedient, and the great majority have shown a desire to make a right use of their time.

III.—THE BUSINESS DEPARTMENT.

Under this head there is a variety of work, for which the President and the Bursar are chiefly responsible—correspondence, books and accounts, general business, and the finances.

CORRESPONDENCE.

The correspondence of the College falls chiefly to the lot of the President, and occupies a considerable portion of his time. There are constant applications for circulars and reports; enquiries about the terms of admission, cost of board, etc.; and requests for information and advice regarding a great variety of matters connected with farm practice throughout the Province; and to this is added the work of arranging annually for a number of Farmers' Institutes in the month of January. Last year the correspondence under the last head occupied most of my spare hours during the months of November and December; and the work is steadily growing in magnitude and importance.

BOOKS AND ACCOUNTS.

Our Bursar, Mr. A. McCallum, as Financial Agent of the Institution, is chiefly responsible for the work under this head. It is his duty to examine all accounts against the College, the Farm, and the Creamery; to check them by invoices and requisitions; to charge each item under the proper head; to make out separate statements for these three departments every month, and submit them to the President, the Farm Superintendent, and the Manager of the Creamery, respectively, for their approval; after which he has to send them to the Treasury for payment.

The Bursar also receives and accounts for all moneys from the College, the Farm, and the Creamery, and pays all accounts that have been approved by the President, the Farm Superintendent, or the Manager of the Creamery, and passed by the Auditor. He also keeps five sets of books, as follows:—

No. 1. Shewing the monthly expenditure under each head of the appropriation for the collage and boarding-house.

No. 2. Giving in detail the revenue and expenditure for the outside departments under the Farm Superintendent.

No. 3. Shewing the live stock and farm produce on hand, and the sales and purchases made under this head from time to time.

No. 4. Giving a statement of the purchases, sales, and other items of revenue and expenditure in connection with the Creamery.

No. 5. Shewing the account of each student from the day he enters the College till he leaves it—tuition fees, board and washing, amounts allowed for labour, and cash balances paid the College for board and washing.

Printed sheets containing the names of all the students are furnished each foreman daily, who fills in the blanks with the description of the work done that day by the students in his department, the number of hours each has worked, and the estimated value of such work. These are filed daily in the office, and journalized weekly. At the end of the financial month these sums are posted to the credit side of each student's account in the ledger, whilst on the debit side is placed the cost of the board and washing for that month, as obtained from the books of the storeroom and the laundry.

GENERAL BUSINESS.

In addition to his duties as book-keeper, the Bursar has to provide supplies for the boarding-house, and see that the quality of all articles furnished by tender is up to the standard required by the terms of contract.

The President signs requisitions for all purchases in the college, takes charge of the college buildings generally, and is responsible, not only for the management, but for the discipline of the inside departments, as regards both officers and students.

FINANCES.

Revenue.

The College revenue in 1886 amounted to \$7,347.18, and was made up of the following items :

(1) Tuition fees	\$2,591 17
(2) Balances paid for board after deducting allowances for work in the outside departments, including also a few fines imposed for violation of rules	4,720 19
(3) Chemicals used by students engaged in post-graduate work	15 00
(4) Bed sheets sold to students (since change in regulations).	15 82
(5) Supplemental examinations.....	5 00
Total revenue in 1886.....	<u>\$7,347 18</u>

*Expenditure.**No. 1—College Maintenance.*

(1) Salaries and wages	\$12,652 42
(2) Food—	
Meat, fish and fowl.....	3,225 44
Bread and biscuits	654 81
Groceries, butter and fruit	3,284 17
(3) Household Expenses—	
Laundry, soap and cleaning	177 12
Women servants' wages	1,639 25
(4) Business Department—	
Advertising, printing, postage and stationery	609 37
(5) Miscellaneous—	
Chemicals.....	21 94
Library and reading-room (books, papers and periodicals) ..	382 95
Unenumerated.....	658 91
	<u>—\$23,306 38</u>
Less college revenue	7,347 18
Net Expenditure for Maintenance.	<u>\$15,959 20</u>

No. 2.—Maintenance and Repairs of Government Buildings.

Furniture and furnishings	\$785 72
Repairs and alterations	773 46
Fuel	3,067 49
Light	823 33
Water	550 00
	<u>\$6,000 00</u>
Total net cash expenditure in 1886	<u>\$21,959 20</u>

The net sum voted by the Legislature was \$23,420 00
 Consequently the unexpended balance for the year is \$1,460 80

Summary of Entire Expenditure.

Net cash expenditure as above.....	\$21,959 20
Produce, etc., from farm and garden (see Appendix 4)	1,490 16
	\$23,449 36
 Less—	
Amount paid by College for labor of students on farm and garden	2,939 70
Other payments on account farm officers, etc	2,200 00
Three-fifths of salary of Professor of Dairying (for time devoted to general dairy interests throughout the province)	900 00
	\$6,039 70
Entire net expenditure of College in 1886	\$17,409 66

CONCLUSION.

Information regarding the reading-room, library, and museum, will be found in Professor Paton's report in Part II., of this volume.

LITERARY SOCIETY.

The literary society in connection with the College never was more active and useful than it has been during the past year. The members of the society met every Friday evening during the Winter Session, in one of the class-rooms, to practise reading, debating and declamation. The majority of the students became members of the society; and the work done was a valuable addition to the educational appliances of the Institution.

In the performance of such work, young men have an opportunity of testing their powers before they engage in the duties and assume the responsibilities of real life in church or state. They learn to speak in public, and gradually become acquainted with the rules of order according to which public meetings are conducted. Their wits are sharpened, their reasoning powers developed, and their manners improved.

RECOMMENDATIONS.

Under this head we generally enumerate our wants and plead for the expenditure of more money. Some of our wants have been supplied during the past year, but we are still in need.

We must admit that hitherto the Government has dealt liberally with us. There is no other agricultural institution on this continent, that has in any twelve years of its history spent so large a sum of money on the farm connected with it, as our farm has received within the last twelve years, for drainage, fencing, tillage, buildings, implements, live stock, and experiments.

This praiseworthy liberality has arisen from a desire on the part of all concerned, that the farm should be a prominent factor in the work of this Institution; and the result is that in farm equipment we do not fear comparison with the best institutions in the country. I regret that I cannot say so much for the College. In fact, I am forced to

acknowledge that there is some ground for the criticisms of those who, at home and abroad, have lately been calling attention to our lack of some buildings and appliances which are clearly necessary, in order to do the work of the College proper, in such a way as to keep pace with the progress of the times.

Chemistry is the foundation of scientific agriculture ; and without it no real progress can be made. Hence any agricultural institution which does not provide adequate appliances for the most thorough and advanced work in this department, must, in some measure, fail to accomplish the object for which such institutions are maintained.

We have a room set apart for Chemistry, and some old-fashioned greenhouses for instruction in Botany and Horticulture ; but we make no claim to anything like adequate equipment in either of these departments.

Two things we must have at once, or we shall certainly fall behind in the race, i.e., a separate building with first-class appliances for instruction and practical work in Chemistry, and a good botanical laboratory with suitable green and propagating houses.

In addition to these, we need a gymnasium, a carriage house and horse stable, some alterations and new cases in the museum, and an appropriation for painting the outside wood-work of the College.

Hoping that this statement of our wants may receive your favourable consideration,

I am,

Your obedient servant,

JAMES MILLS,
President.

APPENDIX 1.

TIME TABLE FOR FALL TERM.

The following Time Table indicates our class-room work from the 1st October to the 22nd December.

TIME TABLE.

FIRST YEAR.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8.45	Agriculture.	Agriculture.	Physiology and Hygiene.	1. Bookkeeping. 2. Arithmetic.	Agriculture.
9.45	English Literature.	Physiology and Hygiene.	English Literature.	3. Agriculture.	Chemistry.
10.45	Chemistry.	Veterinary Anatomy.	Chemistry.	Veterinary Anatomy.	Arithmetic.

SECOND YEAR.

Hours.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8.45	Mathematics.	English Literature.	Mathematics.	English Literature.	Horticulture.
9.45	Agriculture.	Agriculture.	Agriculture.	Practical Horse.	Agriculture.
10.45	Veterinary Pathology.	Agricultural Chemistry.	Veterinary Pathology.	Agricultural Chemistry.	Agricultural Chemistry.

APPENDIX 2.

ONTARIO AGRICULTURAL COLLEGE.

EXAMINATION PAPERS.

I. PAPERS SET AT THE MATRICULATION EXAMINATIONS, EASTER, 1886.

MATRICULATION.

ARITHMETIC.

Examiner : E. L. HUNT.

1. Add $\frac{3}{9}$ and $\frac{17}{24}$ and reduce the sum to a decimal fraction.
2. Divide .0121 by 110 and multiply the quotient by 350.25.
3. Find the cost of 3 tons, 14 cwt. 18 lbs. of hay, at \$12 a ton.
4. A and B can do a certain work in 8 days ; A and C in 10 days ; B and C in 12 days. How long will it take A, B and C to do the work ?
5. A tank is supplied by two pipes. By one it can be filled in 7 hrs., and by the other in 11 hrs. After the first has been supplying for 2 hours, the second is also opened, when both together continue to supply for $2\frac{1}{2}$ hrs., and then the first is closed. How long before the tank is filled ?
6. If $1\frac{1}{2}$ bush. of wheat are sown to the acre, how much will be required to sow a field 264 yds. long and 154 yds. wide ?

ENGLISH GRAMMAR.

Examiner : C. C. JAMES, M.A.

1. "For a creamery, ice is *necessary* ; but *even* in *ordinary* dairying no one *who wants* good butter can *dispense* with it in warm weather."

Separate the above into simple sentences, state the kind of each, and parse the words in italics.

2. State three different methods of forming the plural of nouns. Give singular of *potatoes, pence, kine, shears, brethren*.
3. Name the parts of speech and give examples of each.
4. Correct, where necessary, the following sentences :—
 - (a) The college staff is all back from its holidays.
 - (b) I do not like these kind of sheep.
 - (c) The first and second cow has not been milked.
 - (d) No one can leave the room until the proper time of dismissal.

EASTER EXAMINATIONS, 1886—Continued.

COMPOSITION.

Examiner : C. C. JAMES, M.A.

1. Quote at least eight lines of poetry.
2. Write a composition on one of the following subjects :—
 - (a) The pleasures of farm life.
 - (b) Fall in Ontario.
 - (c) Ambition.

MATRICULATION.

GEOGRAPHY.

Examiner : J. HOTES PANTON, M.A., F.G.S.

1. Name the most important rivers of North America, and where they empty.
2. *Where* and *what* are Trinidad, Vancouver, Mobile, Ceylon, Niagara, Bristol, Danube, Biscay.
3. What effect has a high range of mountains upon the climate of a country ?
4. Draw a map of South America, indicating the principal rivers.
5. Name the fresh water lakes of North America.
6. Define Delta, Isthmus, Estuary, Watershed and Bay, giving examples.

READING AND DICTATION.

Selections from the Fourth Reader.

 11. PAPERS SET AT THE SESSIONAL EXAMINATIONS, EASTER, 1886.

FIRST YEAR.

AGRICULTURE.

Examiner : WM. BROWN.

1. Specify the considerations that should guide anyone in the construction of roads and fences.
2. The under-drainage of farm land secures several things : Name ten of the most important.
3. It is proposed to drain No. 17 field of this farm : Show how you would do this, naming drains and giving a sketch of the ground. Give reasons for the manner in which you lay off said drains.
4. Explain the value of rotation in cropping. Give an example.
5. What circumstances regulate the application of fertilizers to farm crops ?

EASTER EXAMINATIONS, 1886—Continued.

FIRST YEAR.

LIVE STOCK.

Examiner : WM. BROWN.

1. Compare the Aberdeen Poll and Shorthorn breeds of cattle.
2. Criticise the Ayrshire, Holstein and Devon breeds of cattle for direct dairy purposes.
3. Why is the Leicester called Shorthorn among sheep?
4. What are the five principal things to be considered in judging a fleece?
5. Give brief description of a model fattening steer, without reference to any particular breed.
6. Sketch the principal features of a good milch cow.

FIRST YEAR.

INORGANIC CHEMISTRY.

Examiner : C. C. JAMES, M.A.

1. *Fire*—Define combustion, and give the chemical changes taking place in the burning of fuel.
2. *Air*—What is the composition of the air?
3. *Earth*—Name in order the most important constituents of the solid earth.
4. *Water*—Give composition and symbol. Distinguish rain, river and sea waters. Give two of the most important uses of water in nature.
5. *Breathing*—What chemical changes result from breathing the atmosphere? Prove that the exhaled breath differs from the inhaled breath.
6. *Life*—State the relationship existing between animal and vegetable life.
7. *Chlorine*—Shew how chlorine can be used as a disinfectant. Upon what property or properties does this use of chlorine depend? Give formulas if possible.
8. *Symbols*—Give chemical symbols for four acids and from them derive the salts of Sodium and Magnesium.
9. *Animal Heat*—Explain chemically how animal heat is maintained.
10. *Compounds*—Give chemical composition of the following substances:—Sand, Clay, Limestone, Salt, Nitre, Quartz, Superphosphates, Cast-Iron, Burnt-Lime, Slaked-Lime, Pearl-Ash, Epsom Salts, Marble, Caustic Potash, Baking Soda. (Symbols and names are required as far as possible.)

FIRST YEAR.

ORGANIC CHEMISTRY.

Examiner : C. C. JAMES, M.A.

1. Define the chemical term Radical. Give names and symbols for five (5) monad and five diad radicals.
2. *Common Alcohol*—(a) Give its chemical name and symbol; (b) give the changes occurring in alcoholic fermentation.

EASTER EXAMINATIONS, 1886—Continued.

3. State chemically the origin of sugar and wood-fibre in vegetation.
4. Explain the souring of milk, and the curdling of milk, giving reaction in former case in formula.
5. Distinguish Alcohols, Acids, and Ethers, according to their chemical composition.
6. What are Albuminoids? Give names and examples of the different forms.
7. Distinguish Decay and Putrefaction.
8. State as far as you are able the chemical composition of Starch, Vinegar, Milk, Cheese, Butter, Eggs, Tea, Tobacco, Beer and Ale.

FIRST YEAR.

PHYSIOLOGY AND ZOOLOGY.

Examiner: J. HOYES PANTON, M.A., F.G.S.

1. Name the different classes into which the sub-kingdom Vertebrata is divided and give the characters of any one.
2. What is meant by insectivorous birds? Give a popular classification of such, and name those belonging to the second division.
3. Distinguish between a whale and a shark, and explain the expression "distribution in time and space," as applied to animals.
4. Draw a diagram illustrating the circulation of the blood. Explain the term Hygiene.
5. State the changes, and where they take place, which the food undergoes until it reaches the *Thoracic Duct*.
6. Classify foods with reference to their use in the animal economy. Write brief notes on Milk, Oatmeal, and Potatoes, as feeding stuffs.
7. State the effects of alcoholic stimulants upon the system.
8. Identify the specimens before you.

FIRST YEAR.

VETERINARY ANATOMY.

Examiner—F. C. GRENSIDE, V. S.

1. Mention the bones that enter into the formation of the Pelvic cavity, and name the organs contained in that cavity in the mare.
2. Give the names ordinarily applied to the joints of the fore and hind extremities, in order, from above downwards.
3. What are the functions of glands? Give some examples of those possessing ducts, and those that are ductless.
4. Describe the difference in the appearance of temporary and permanent incisors, and state indications of a five year old mouth.
5. Describe the small intestine.
6. Name the urinary organs, and describe the bladder, stating how urination is effected.
7. Give a general description of the lymphatic or absorbent system.

EASTER EXAMINATIONS, 1886—Continued.

8. Describe the heart.
9. Describe the ovaries and the Fallopian tubes ; also the manner in which the womb is retained in its position.
10. Name the cranial nerves and state their respective functions.

FIRST YEAR.

ENGLISH LITERATURE.

Examiner—J. HOYES PANTON, M.A., F.G.S.

1. Give the chief characteristics of Macaulay as a writer, and name some of his most important works.
 2. Name the principal charges made against Warren Hasting's administration in India, and state who were the chief speakers in the prosecution and defence.
 3. Who was Sovereign of England at this time, and what was the result of the trial ?
 4. Sketch briefly the character of Nuncomar, Hastings and Impey.
 5. Give the reasons put forward by Macaulay, for believing that Francis was the author of the Letters of Junius.
 6. "He would recover the estates which had belonged to his father. This purpose grew stronger as his intellect expanded. He pursued his plan with calm indomitable force of will, and when under a tropical sun, his hopes amidst all the cares of war, finance and legislation, still pointed to Daylesford. When his life, chequered with good and evil, with glory and obloquy, closed, it was at Daylesford."
- (Explain the references in this passage and paraphrase this quotation).
7. Describe the mode of government in India at the time of Hastings.
 8. What reasons can be urged in favour of Hastings' conduct ? State how he erred in the management of his case.

FIRST YEAR.

COMPOSITION.

Examiner—JAMES MILLS, M.A.

1. Quote rules for punctuating simple sentences.
2. Punctuate the following passages and give the rule for every mark inserted :
 - (a) Deut x 21 2 Sam ix 18 AD 1886
 - (b) Be our plain answer this The : throne we honour is the people's choice.
There are three genders the masculine the feminine and the neuter.
 - (c) Greece fell but how did she fall did she fall like Babyloin did she fall like Lucifer never to rise again
3. Give an example each of a *simple*, a *complex*, and a *compound* sentence.
4. State the principles which guide in the arrangement of phrases in a simple sentence and clauses in a complex sentence.
5. Complete the following sentences by supplying substantive clauses :
 - (1) We cannot tell——
 - (2) Look at the elephant : did you ever wonder—— ?

EASTER EXAMINATIONS, 1886—Continued.

6. Expand into complex sentences :

(a) The rainbow seen yesterday was very beautiful.

(b) The wind being fair, we put to sea.

7. Contract into simple sentences :

(1) The trees are growing along the river, and are very large.

(2) Dr. Johnson was in great distress, when he was writing many of his works.

8. Combine the following statements into a simple sentence :

The island at first seemed uninhabited.

The natives gradually assembled in groups on the shore.

The natives overcame their natural shyness.

The natives received us hospitably.

They brought down for our use the various products of their island.

9. Write a short composition on *the kind of education which a farmer should have.*

FIRST YEAR.

ARITHMETIC.

Examiner—E. L. HUNT.

1. N. B.—Only for those who fail to do three of the following questions: Find the simple interest, the compound interest, the true discount, and bank discount on \$3,798 for $2\frac{1}{2}$ years, at 7 per cent.

2. From the following, taken from the tables of the dairy test of 1884-85 : Compare the Holstein and Jersey as to the quantity of butter made in the season.

SERVICES.	Milk. Per Season.	Cream. Per Cent.	Butter. Per 100lbs. Cream.
Holstein	7,000	11.9	34.5
Jersey	3,500	19.9	55.0

3. (a) If an ounce of gold and an ounce of wheat are placed in opposite scale pans, what weight of wheat must be added to make the scales balance?

(b) If a pound of silver and a pound of oats are placed in opposite scale pans, what weight of silver must be added to make the scales balance?

(A pound Avoirdupois, contains 7,000 grains Troy).

4. A insures his property for $\frac{5}{8}$ of its value at $\frac{3}{4}$ per cent. for 3 years. It is destroyed by fire, and after the Insurance Company pay the claim in full, A's loss is \$3,600, besides the amount paid as premium. Find the value of the property and amount of one premium.

5. (a) \$8,650 is invested in the 6 per cent. Stocks, at 110. Find the amount of Stock purchased and annual income.

(b) A owns \$3,800 of the 5 per cent. Stocks, at $95\frac{1}{4}$; he sells out and invests the proceeds in the 7 per cents., at $119\frac{3}{4}$. Find the alteration in his income, brokerage in each case being $\frac{1}{4}$ per cent.

6. A farm is let for a fixed sum of money, and a certain number of bushels of wheat; when wheat is 70 cents a bushel the rent is \$750; when wheat is 78 cents a bushel the rent is \$780. What will the rent be when wheat is 91 cents a bushel?

EASTER EXAMINATIONS, 1886—Continued.

7. A and B engage to reap a field for £4 10s., and as A could reap it alone in nine days, they promise to complete it in five days. They found, however, that they were obliged to call in C, an inferior workman, to assist them for the last two days, in consequence of which B received 3s. 9d. less than he otherwise would have done. In what time could B and C reap the field?

FIRST YEAR.

BOOK-KEEPING.

Examiner : E. L. HUNT.

1. Write the form of a note negotiable without indorsement, of an accepted draft, and of the receipt which would be given in question 4, Dec. 31st

2. If you find the Cr. side of the Trial Balance is larger than the Dr. side, explain how you would proceed to detect the errors in your entries.

3. In opening your ledger at the beginning of the year, give the entries you would make if engaged in mixed farming on an ordinary farm of 200 acres.

4. Enter the following in the accounts affected : Jan. 20, sold for cash, 120 bushels barley @ 65c. a bushel ; Feby. 5, sold for cash, 70 lbs. butter @ 20c. a lb. ; April 10, fed cows 2 tons hay @ \$9.00 a ton, and 50 bushels of oats @ 35c. a bushel, and 300 bushels turnips @ 8c. a bushel ; Aug. 25, bought a cow, \$70.00 ; Dec. 31, paid S. Harvey (hired man) \$30.50, being the balance due him for the year.

5. Make out and close an account with the store steers from January 1st, 1885.

6. State in what accounts, and on which side of them, you would enter the following :

- (a) Lost my pocket-book containing \$50.00 ; paid 75c. for advertising it ; and after a few days it was returned, when I gave the finder \$6.00.
- (b) Sold 25 acres of land for \$60.00 an acre, taking in payment one thoroughbred bull \$900.00, and the balance in cash.
- (c) Lent \$5.00 to a neighbour for a few days, taking his I.O.U
- (d) Paid \$10.00 for insurance of household furniture.

SECOND YEAR.

AGRICULTURE.

Examiner : WM. BROWN.

1. To what extent and in what manner would it be advisable for the average farmer of Ontario to change his system of farming to meet the requirements of Dairying as now practised ?

2. Where Dairying is advisable as a specialty on the part of an individual farmer, under what circumstances would you advise Butter and Cheese respectively ? Recommend, if you can, the extension of the business into winter.

3. The improvement of our pastures is an acknowledged want : specify the manner in which this crop will affect Ontario Agriculture, both at home and abroad.

4. Give a brief account of the manner of establishing permanent pastures.

5. Make a list of the points to be taken into consideration in arranging farm buildings, with a brief note explanatory of each.

EASTER EXAMINATIONS, 1886—Continued.

SECOND YEAR,

LIVE STOCK.

Examiner : WM. BROWN.

1. The Shorthorn, Ayrshire, Holstein, Guernsey, Devon, and Jersey breeds of cattle contest the dairy field at present : name any two of them that meet the average conditions of Ontario in this specialty equal to any other three of the same list. Give full explanations.

2. To what extent should the average farmer consider the selection of a bull for dairy purposes and indicate which the animal should be, irrespective of any particular breed.

3. In what direction should an average farmer aim at wool and mutton to-day ?

4. Specify the good and poor points of the South Down, Oxford Down, and Cheviot breeds, as applicable to the last question.

SECOND YEAR.

ARBORICULTURE.

Examiner : WM. BROWN.

1. The scientific and practical application of Forestry to Canada involves many considerations : specify those we have studied from a more immediate agricultural interest.

2. Give brief notes on the planting of shade trees, specifying in order the items of management from the purchasing of trees on to the second year's stage.

3. In the formation and management of extensive plantations give the principal operations up to the third year.

4. To what extent would the average Ontario farmer be justified in devoting so much of his land to a crop of trees with a view to direct cash profits ?

5. Name the trees most suitable for shade, for shelter belts, or clumps, and for large plantations in Ontario.

SECOND YEAR.

AGRICULTURAL CHEMISTRY. I.

Examiner : C. C. JAMES, M.A.

1. Name the chemical elements found in plants, stating the special forms of combination of each.

2. State the functions of (a) leaves and (b) roots in the development of plant life.

3. (a) How do soils originate ? (b) Discuss the origin and effect of colour of soils.

4. What are the effects of (a) tillage and of (b) drainage upon soils ?

5. What are the most valuable ingredients of fertilizers ? Name the principal sources of each (natural and commercial).

6. Discuss farm yard manure, (a) its preservation, (b) its effect, (c) its application.

7. What are the distinguishing characteristics in composition of the following classes of products :—cereals, hay, leguminous, crops, roots.

EASTER EXAMINATIONS, 1886—Continued.

8. What are the manures specially adapted for each of the above? Give brief reasons.
9. State the scientific reasons for the advantages derived from rotation of crops.
10. Give a rotation (four or five years) with your reasons for adopting the same.

SECOND YEAR.

AGRICULTURAL CHEMISTRY. II.

Examiner : C. C. JAMES, M.A.

1. Describe briefly the process of digestion, stating the peculiar functions of the several digestion ferments.
2. Define (and give examples of) Digestion, Co-efficient, Nutrient, Fodder, Ration, Nutritive Ratio.
3. Give the Nutritive Ratios of ten common Canadian fodders.
4. Distinguish fats, carbohydrates, and albuminoids, according to their chemical composition: state their peculiar value and functions in a ration; and give examples of fodders in which each predominates.
5. Discuss briefly the feeding of cows for milk, sheep for wool, and of horses for work.
6. Give average composition of milk. Wherein consists the special feeding value of whey, buttermilk, and skimmed milk?
7. Explain the whole process of obtaining butter from milk. What is the chemical composition of butter? Explain, chemically, rancidness in butter.
8. Calculate the value of the Phosphoric Acid contained in the fine ground bone phosphate made from the bones of a 1,500 lb. ox.

SECOND YEAR.

ETOMOLOGY.

Examiner : J. HOYES PANTON, M.A., F.G.S.

1. What is an insecticide? Name some of the most common, and state how they are used.
2. Explain the terms:—maggot, weevil, nymph, chrysalis, pupa, grub, bug, as applied to insects.
3. Name some insects that are injurious to plants in both the larval and imago condition.
4. Name the orders to which our most beneficial insects belong, and specify four genera.
5. Give remedies for the destruction of the following noxious insects:—Climbing cut-worms, turnip beetle, and the apple tree bark louse.
6. Contrast *Telea* with *Platysamia*. What fruit trees do they affect?
7. Give the salient characters of the plum curculio, the clover midge and the saw fly, and give remedies to prevent their ravages.
8. Identify the specimens before you, indicating the plants which they affect, and give one remedy for each of the first six.

EASTER EXAMINATIONS, 1886—Continued.

SECOND YEAR.

VETERINARY PATHOLOGY.

Examiner: F. C. GRENSIDE, V.S.

1. Define what is meant by Specific and Sporadic diseases, and give an example of each class.
2. What are the different symptoms of Dislocation of the Cervical Vertebrae and Wry-neck; and what are the results of each accident?
3. Name the diseases of the feet to which horses are liable, and describe how to diagnose and treat a case of punctured foot.
4. Describe the symptoms, causes and treatment of Poll-evil and Fistulous Withers.
5. Mention the structures that are involved in Simple Ophthalmia, and describe the treatment of this affection.
6. Define the term hernia; and explain all you know about the umbilical form.
7. Describe the symptoms, possible terminations, and treatment of Garget, in the cow and ewe.
8. State whether the cow or horse is most subject to gastric or intestinal derangements respectively; and give reasons for answers.
9. Describe the usual exciting and predisposing causes of digestive and respiratory disorders; also a rational plan of securing efficient ventilation.
10. Mention the indications for Tracheotomy, and describe how to perform the operation, stating the structures which are incised.

SECOND YEAR.

SHAKESPEARE—RICHARD II.

Examiner: S. C. SMOKE, B.A.

1. Wrath-kindled gentlemen, be rul'd by me:
Let's purge this choler without letting blood.
This we prescribe, though no physician;
Deep malice makes too deep incision.
 - (a) By whom spoken?
 - (b) To whom do the pronouns *me*, *'s* and *we* refer respectively?
 - (c) Give the different meanings of *let*.
 - (d) Name and explain the figure employed in the second line.
 - (e) Scan the 3rd and 4th lines.
2. Quote the passages in which occur the following expressions: *dark dishonour's use, slander's venom'd spear, gilded loam or painted clay, a dearer merit not so deep a maim, four lagging winters, the hungry edge of appetite, this precious stone set in the silver sea.*
3. Give the meaning and derivation of the following words: *inveterate, appeal, miscreant, inhabitable, atone, degenerate, regenerate.*
4. A partial slander sought I to avoid,
And in the sentence my own life destroyed.
 - (a) By whom spoken?
 - (b) Explain the meaning of *partial slander*.
 - (c) Analyze this extract syntactically.

EASTER EXAMINATIONS, 1886—Continued.

5. Locate the following passages, and explain concisely the allusions and meaning in each :—

- (1) "Whose manners still our tardy apish nation,
Limps after in base imitation."
- (2) "Thy state of law is hand-slave to the law."
- (3) "Take Hereford's rights away, and take from Time
His charters and his customary rights."
- (4) "We hear this fearful tempest sing,
Yet seek no shelter to avoid the storm."
- (5) "The task he undertakes
Is numbering sands and drinking oceans dry."
- (6) "Tut, tut!
Grace me no grace, nor uncle me no uncle."

6. Name four of the greatest poets and four of the greatest prose writers of the Elizabethan era of English literature.

7. Give in order the sovereigns of the Plantagenet line proper, with a note on the reign of each.

(a) Who was the greatest poet in England in the reign of Richard II?

8. Name the different classes of Shakespeare's plays, giving an example of each, and say to which class Richard II. belongs.

9. Sketch briefly the characters of Richard II. and Bolingbroke.

SECOND YEAR.

POLITICAL ECONOMY.

Examiner: W. DOUGLAS, B.A.

N.B.—Give brief answers to all questions.

1. *Commodities*—The denominator being constant, how will the wealth of the community be affected by increasing or diminishing the numerator?

2. The numerator being constant, how will wealth be affected by increasing or diminishing the denominator?

3. *Product*—Numerator being constant, how will wealth be affected by increasing or diminishing the denominator?

4. The denominator being constant, how will wealth be affected by increasing or diminishing the numerator?

5. The numerator being constant how will value be affected by increasing or diminishing the denominator?

6. Give an example where an increase of wealth coincides with an increase of value.

7. Give an example where a diminution of wealth coincides with an increase of value.

8. Give an illustration showing that a substance is wealth only when it is (1) in the right place, (2) at the right time, (3) in the right quantity.

9. Why is one man a watchmaker and another man a hatter? Give *five* reasons.

10. Are people becoming more dependent or independent of one another? Illustrate.

11. Whose income continues only so long as he make effort? Whose income continues for ever, though he toil not?

EASTER EXAMINATIONS, 1886—Continued.

12. Does interest increase or diminish in the course of years? Does rent (including town property) increase or diminish? Give proofs.
13. When men strike, is it for increase of *real* wages or *nominal* wages? How do workmen sometimes diminish real wages?
14. What effect has aided immigration on wages?
15. What new competitor is the Canadian farmer meeting in the British wheat market?
16. What is the rent per acre of land in the following locations?
 - (a) In the neighbourhood of the College;
 - (b) In the centre of Guelph;
 - (c) In the centre of Toronto.
17. Why are wages and interest at nearly the same rate in these different places, and why do rents differ so enormously?

SECOND YEAR.

MECHANICS.

Examiner: E. L. HUNT.

1. Explain the terms—uniform acceleration, mass, momentum, density.
Why does a heavy body, when allowed to fall freely, move with a uniform acceleration?
 - (a) A stone dropped from the hand into a well strikes the bottom in $2\frac{1}{2}$ secs; find the depth of the well.
 - (b) A body weighing 9 lbs. is projected vertically downwards from the edge of a precipice with a velocity of 40 ft. a sec., and at the same moment another weighing 29 lbs. is dropped: find the distance between them at the end of $1\frac{3}{4}$ secs.
 - (c) Find the time when the momentum of one is equal to that of the other.
2. (1) When would the wheel and axle work at a mechanical disadvantage? (2) How may the mechanical advantage of the screw be increased? (3) Where is the greatest strain in the handle of a pitch-fork? Explain.
3. What are the conditions that two forces acting at a point may be in equilibrium?
 - (a) 2 forces of 42 lbs. and 56 lbs. act on a body at right angles to each other: find the magnitude of the single force equivalent to these two forces;
 - (b) A horizontal force of 75 lbs. is required to move a body along a level road: find the magnitude of the force if it act at an angle of 30° to the horizontal. (In ordinary cases would the actual be greater or less than the mathematical result? Why?)
4. In the hydrostatic press shew clearly that the work done by the power is equal to the work done by the weight.
5. (a) If the specific gravity of maple is 0.65 find to what depth a cubic block of it, the length of whose edge is 28 ft., will sink in water; (b) What weight placed on it will just immerse the whole block?
6. Explain, using a diagram, the working of the common pump, and by reference to diagram state when it will fail to work.
7. Draw a rough sketch of the Hydraulic Ram and clearly explain the principle by which it works; mention cases where it may be advantageously used.
8. Given that a cubic foot of water weighs 1000 ozs. and the atmospheric pressure 15 lbs. to square inch; find the height of the column of water sustained by atmospheric pressure.

MIDSUMMER EXAMINATIONS, 1886.

9. In a lifting pump, if the diameter of the bore is $1\frac{1}{2}$ inches, and the distance from the end of the handle to the piston rod is 3 feet, and from the piston rod to the bolt about which the handle turns is 6 inches, find approximately what power exerted at the end of handle is required to raise the piston when the column above the valve is 100 ft. high.

(b) Find the power, if exerted one foot from end of handle.

III. PAPERS SET AT THE MIDSUMMER EXAMINATIONS, JUNE, 1886.

FIRST YEAR.

AGRICULTURE.

Examiner: WM. BROWN.

1. Classify Manures and indicate the practical value of those common to Canada.
2. Report on the accompanying sample of Barley.
3. What affected the time of seeding and quantity of seed per acre in our farm work this season?
4. Give details of the management of Field 5.
5. How do we usually prepare land for a root crop?
6. Give a short criticism on the systems of Bare Fallowing and Root Cultivation.
7. What is the place of Green Fodders in mixed farming? Which particular plants do you recommend? Give reasons.
8. What is implied in the term—"a first-class pasture"?

FIRST YEAR.

DAIRYING.

Examiner: J. W. ROBERTSON.

1. Describe the best method of rearing calves for the Dairy—as to feeding, etc., till time of dropping first calf.
2. How and under what conditions should milking be done? Give reasons with answers.
3. What is the best feed for milking cows in spring time?
4. What treatment will best prepare milk for delivery to a cheese factory?
5. Explain how the lactometer should be used and what may be learned of the quality of milk from its use.
6. Give a definition of cream, and state its average composition.
7. How should cream be prepared for churning?
8. Name the qualities, with comparative points of value, possessed by perfect butter.
9. What effect would the development of excessive acid have on the body, flavour, texture, and colour of cheese?

MIDSUMMER EXAMINATIONS, 1886—Continued.

FIRST YEAR.

GEOLOGY.

Examiner : J. HOYES PANTON, M.A., F.G.S.

1. Name the different geological systems represented in Manitoba and the North-West, and give the economic products found in each.
2. Describe the rock exposures found either at Guelph or Limehouse.
3. In what respect is a knowledge of Geology of importance in the study of agriculture?
4. Explain the terms "weathering" and "denudation," giving examples of each.
5. In what rocks are the following found:—coal, petroleum, salt, chalk, gypsum, copper, and lead?
5. Describe the condition of North America at the close of the Archean age.
7. Write brief notes on the formation of glaciers, their influence on a country; and state reasons for believing they once were in Ontario.
8. What inferences can be made from fossils in rocks? Give examples illustrating your answer.
9. Identify the specimens before you.

FIRST YEAR.

BOTANY.

Examiner : J. HOYES PANTON, M.A., F.G.S.

1. State the different ways in which plants climb; give examples of each.
2. Name the essential organs in a flower, and state what modifications these undergo through selection and cultivation.
3. Contrast an exogenous with an endogenous plant.
4. Name the most important underground stems, and give examples.
5. Give notes on the fertilization of plants, and name the agencies by which it is effected.
6. Show in what respect plants and animals are dependent on each other.
7. State conditions which influence the distribution of plants.
8. Give short notes on Stomata, Silique, Legume, Stipule, Spike, Epigynous, as applied to plants.
9. Analyze the specimen before you.

FIRST YEAR.

VETERINARY MATERIA MEDICA.

Examiner : F. C. GRENSIDE, V.S.

1. Describe the relationship of the physiological actions of medicines to their therapeutic effects.
2. Mention the circumstances which modify the actions of medicines.

MIDSUMMER EXAMINATIONS, 1886—Continued.

3. Give the symbols used to express the different weights, also the various measures of capacity of medicines.
4. Describe the different forms in which medicines are used and given to the domesticated animals.
5. Define the following terms, viz. :—Cathartic, Diaphoretic, Anaesthetic, Sedative, Alterative and Ecboic.
6. Which is the best kind of aloes for the horse? State the quantity necessary to purge a horse, and when its use is contra-indicated.
7. State the respective effects of alum and aniseed on the lacteal secretion, and mention some substances the actions of which are similar to anise.
8. Give the dose of aconite and its actions.
9. Describe the course to pursue in ridding a dog of tapeworms.
10. What are the actions of Chloral Hydrate, and its properties.

FIRST YEAR.

ENGLISH LITERATURE.

Gray's "Elegy" and Selections from Wordsworth.

Examiner: E. L. HUNT.

1. Quote Wordsworth's description of a sunset; also any passages from Wordsworth and the Elegy which refer to the early morning, noon, and nightfall.
2. Locate the following passages and explain the meaning of each :—
 - (a) "And yet the miser mind
Mourns less for what age takes away
Than what it leaves behind."
 - (b) "He fixes good on good alone."
 - (c) "There is often found
In mournful thoughts, and always might be found,
A power to virtue friendly."
 - (d) "And many a holy text around she strew
That teach the rustic moralist to die."
 - (e) "The threats of pain and ruin to despise."
3. What, according to Wordsworth, are the traits of character desirable in the ideal happy warrior?
4. Define Simile, Alliteration, Antithesis, Personification, and Pathetic Fallacy, and give an example of each from any of the poems read.
5. Scan the following lines and name the metre in each :—
 - (i) And leaves the world to darkness and to me.
 - (ii) Let loose their carols when they please.
 - (iii) Are quiet when they will.
 - (iv) In bodily form. But without further bidding.
 - (v) Frugal, affectionate, sober and withal.
6. Quote the stanzas in which the following occur :—
 - (i) "Shapless sculpture."
 - (ii) "Pious drops."
 - (iii) "Neglected spot;" also quote those which convey the thought that (a) all human glory ends at last at death; (b) The world knows little of many of its greatest men; (c) Man wishes to be remembered after death; (d) Poverty represses genius.
7. Write a brief criticism of the Elegy.

MIDSUMMER EXAMINATIONS, 1886—Continued.

FIRST YEAR.

MENSURATION.

Examiner: E. LAWRENCE HUNT.

1. How many bricks are required to build a wall 80 ft. long, 18 ins. thick, and 15 ft. high, a brick being 9 ins. long, $4\frac{1}{2}$ ins. wide, and 3 ins. deep?
2. A barn is built 120 by 65 ft., with the same amount of wall: (a) How much more floor surface would there be if the barn were square? (b) If it were round?
3. A stick of timber 45 ft. long is in the form of a cylinder: (a) Find the solidity if the diameter is 5 ft. (b) Find the solidity of the largest square stick that can be hewn out of it.
4. A bin is 12 ft. long, 5 ft. wide, and 4 ft. deep: (a) How many bushels will it contain? (b) How often can the pail (which is in Examination Hall) be filled from it?
5. A ditch is half a mile long, 2 ft. wide at bottom, and 4 ft. deep; the sides slope so that each makes an angle of 120° with the bottom, (*i.e.* an angle of 30° with the *perpendicular* from the bottom); find the number of cubic yards of excavation.
6. A ditch is 8 ft. wide at the top and the sides meet at the bottom at an angle of 60° ; find the depth of the water when the ditch is half full of water.

SECOND YEAR.

AGRICULTURE.

Examiner—WM. BROWN.

1. Indicate the practical bearings to the country, of the two pasture experiments now being conducted in field plots.
2. The cropping of this farm is made up of so much grain, roots, fodders, and pasture: Show roughly the relation of these to (1) maintenance of Working and Stock animals; (2) surplus pure-bred stock sold; (3) milk; (4) wool; (5) steers fattened annually. Illustrate by diagram if necessary.
3. The following is Rotation A in our experimental plots: (1) roots; (2) spring wheat, seeded; (3) hay; (4) hay; (5) pasture; (6) peas; (7) oats. Rotation B is the same length, but differently followed—give its details; give also the four shifts of Rotation C, and shew any relationships to A and B.
4. Make comparative notes on the arrangements of new farm buildings, as planned by the class, and those now in course of construction.

SECOND YEAR.

DAIRYING.

Examiner—J. W. ROBERTSON.

1. Give reasons why dairy farming is preferable to exclusive grain growing.
2. State the main characteristics of a good dairy cow.
3. How might the *quality* of the milk from an ordinary herd be improved?
4. Compare the relative profits from heifers dropping their first calves at two years old, and three years respectively.

MIDSUMMER EXAMINATIONS, 1886—Continued.

5. Describe the most economical method of feeding dairy cows while not milking during the winter.
6. What treatment would be effective in removing a leeky taint from milk, and to what class of taint does it belong?
7. State the methods of separating cream from milk, and say what considerations would guide you in determining as to which is preferable.
8. What is the average composition of milk, butter, cheese?
9. State the proper range of churning temperatures, and briefly describe the process of butter-making from the time churning commences.
10. Name the qualities, with comparative points of value, possessed by perfect cheese.
11. How would you be guided in selecting places whereon to erect a creamery and a cheese factory?
12. What is rennet, and what is its action in cheese-making?

SECOND YEAR.

ANALYTICAL CHEMISTRY.

Examiner—C. C. JAMES, M.A.

1. Draw the apparatus (in use) for making carbon dioxide.
 2. How would you distinguish the principal acids?
 3. How would you easily distinguish at sight gypsum and mica, quartz and marble, hard and soft coal, ground apatite and superphosphate, calcite and crystalline quartz?
 4. State the ingredients of *common salt*. How would you determine the presence of each?
 5. Analyze the sample of *soil*. From your results what can you say as to its value, its origin, its greatest need in the way of fertilizers, etc?
 6. Examine the sample of water, and report on it, drawing any conclusions warranted by your analysis.
- N. B.—In all results, the re-agents used, and the accompanying re-actions must be stated.

SECOND YEAR.

METEOROLOGY.

Examiner—J. HOYES PANTON, M.A., F.G.S.

1. Explain the term "area of low pressure." How is it ascertained? What practical use is made of it?
2. Climate is said to be affected by the physical features of a place: Illustrate this by referring to a district situated as follows: (1) In the vicinity of a large body of shallow water; (2) near a body of deep water; (3) separated from the ocean by a lofty chain of mountains.
3. Describe the *pluviometer*, and shew the practical use of data obtained by it. Tabulate the results from a series of six observations on snow and rain.
4. Where, when, and why do the Chinook winds occur?

MIDSUMMER EXAMINATIONS, 1886—Continued.

5. What data are required concerning the temperature of a place to form an idea of its climate.
6. Under what circumstances does the thermometer fail to give you the true idea of the coldness of a locality.
7. Name the different kinds of thermometers used, and reduce 60° Fahr. to 6° centigrade.
8. Explain the Vernier as used on a barometer.
9. Read the instrument before you.

SECOND YEAR.

SYSTEMATIC AND ECONOMIC BOTANY.

Examiner : J. HOYES PANTON, M.A., F.G.S.

1. Give the life history of the fungus which causes smut, and some remedies to prevent it.
2. Give a popular classification of the most common plants found in the orders, Cruciferae, Boraginaceae and Amarantaceae.
3. Give the principal characters of the orders, Oleaceae, Lobeliaceae and Coniferae.
4. Name orders in which plants are found, from which the following economic products are obtained :—sugar, lumber, oil, and hemp.
5. Name some of the most common wild flowers of April and May, and the orders to which they belong.
6. Distinguish the so-called Calla lily from a true lily.
7. Account for the distribution of weeds ; classify the most common according to the time required for their development, and give some general principles required to be adopted to destroy them.
8. In the samples of wheat, oats, and peas given, name the different kinds of weed seeds found in each of them.
9. Analyze the plant before you according to the accompanying schedule.

SECOND YEAR.

PRACTICAL HORTICULTURE.

Examiner : J. HOYES PANTON, M.A., F.G.S.

1. Given the following plants : Ageratum, Cineraria, Orthonna, Lobelia, Amaranth, Coleus, Geranium, and Ricinus ; how would you arrange them :—
 - (1) In a bed with a wall at the back.
 - (2) In a rectangular bed at a distance from a fence or wall.
 - (3) In a circular bed.
2. Name a collection of plants best adapted for hanging baskets, carpet bedding, and window culture.

MIDSUMMER EXAMINATIONS, 1886—Continued.

3. What specimens of grafting are placed before you? State the precautions necessary to observe in this operation.
4. How would you proceed to grow plants from cuttings? Name some in which this process is often followed.
5. How would you make a soil suitable for potting plants?
6. Name some shrubs which have failed, owing to the climate, at the Agricultural College, and give seven of the most thrifty.
7. Identify the plants in the collection before you.

SECOND YEAR.

VETERINARY MATERIA MEDICA.

Examiner : F. C. GRENSIDE, V.S.

1. Give a prescription containing a vegetable and mineral tonic, stating the indications for the administration of such, and the best method of giving the same to a horse.
2. Which is the most powerful diaphoretic agent we know of, and in what conditions will it be found useful?
3. Describe how to prepare what is called "White Lotion," and state its uses.
4. Mention the medicinal and dietetic products of flax-seed.
5. Describe how to prepare a purgative drench for the ox.
6. Give the properties of Biniodide of Mercury and state how to prepare it for use, also the indications for its use.
7. What is Opium? Give its properties, actions and uses; and state how it differs from Laudanum and Morphia.
8. What are the common names for Nitrate of Potash? Give its actions and medicinal uses.
9. Give the technical names for Epsom and Glauber's Salts respectively, and state their comparative value as purgatives for the ox.
10. Give a prescription for Tympanitis in the ox.

SECOND YEAR.

BREEDS OF HORSES.

Examiner : F. C. GRENSIDE, V.S.

1. What is the supposed origin of the Shire and Clyde respectively? State any differences in feature that would enable one to distinguish a representative of one breed from that of the other.
2. Make a comparison of the limbs of a Shire and Clyde, and describe the significance or feather *versus* no feather.
3. Name the four breeds of draught horses, and name the characteristic middle piece of each.
4. Compare the fore and hind-quarters, head and neck of the Suffolk and Clyde.
5. Name the varieties in colour found amongst the Suffolks and Percherons.
6. Mention two prominent defects frequently noticeable in the Percheron.

MIDSUMMER EXAMINATIONS, 1886—Continued.

7. Describe the characteristics of the Cleveland Bay.
8. Define the term, "quality," as applied to a horse, and describe the origin of "Thorough-bred" breed.
9. Describe the factors that have determined the existence of the American trotter.
10. What are the predominating colours and average height of the Thoroughbred.

SECOND YEAR.

ENGLISH LITERATURE.

MILTON'S "L'ALLEGRO" AND "IL PENSEROSO."

Examiner—S. C. SMOKE, B.A.

1. About what period of Milton's life were these poems written? Name some of his other writings.
2. Which of these two poems do you prefer? Give grounds of preference.
3. Quote the passages in which the following expressions occur: *Slumbering morn, tufted trees, shadowy flail, busy hum, deluding joys, fleecy cloud, dewy-feathered sleep.*

4. " Daemons that are found

In fire, air, flood, or under ground,
Whose power hath a true consent,
With planet, or with element."

Explain what is meant.

5. "Hence loathed melancholy,
Of Cerberus, and blackest midnight born,
In Stygian cave forlorn,
'Mongst horrid shapes, and shrieks, and sights unholy;
Find out some uncouth cell,
Where brooding Darkness spreads his jealous wings,
And the night-raven sings:
There under ebon shades and low-brow'd rocks,
As ragged as thy locks,
In dark Cimmerian desert ever dwell."

(a) Write notes on *Cerberus*, *Stygian*, *Cimmerian*.(b) Explain the force of the words *brooding* and *jealous* as used here.(c) Shew the syntactical relation of the words *hence*, *born*, *forlorn*, *ragged*, *dwell*.

(d) Scan the last two lines.

6. "But, O sad virgin, that thy power
Might raise, Musæns from his bower,
Or bid the Soul of Orphans sing
Such notes, as warbled to the string,
Drew iron tears down Pluto's cheek,
And made Hell grant what love did seek."

(a) Relate the story of *Orphans*. (b) Parse *sing*, *as*, *warbled*, *drew*.(2) *Might raise*; What would be the difference in meaning if *may* were used instead of *might*.

7. "The full voiced quire." What other way of spelling the word italicised? What is the derivation of the word? Give your opinion as to the desirability of adopting a system of *phonetic spelling*, with your reasons.

MIDSUMMER EXAMINATIONS, 1886—Continued.

8. Write as good a prose paraphrase as you can of the following passage :

“ But let my due feet never fail
To walk the studious cloister's pale,
And love the high embowed roof,
With antique pillars massy proof,
And storied windows richly dight,
Casting a dim religious light.
There let the pealing organ blow
To the full-voiced quire below
In service high, and anthems clear,
As may with sweetness, through mine ear,
Dissolve me into ecstasies,
And bring all Heaven before mine eyes.”

9. What do you consider the essential characteristics of poetry, and wherein does it differ from prose? What meaning would you attach to the expression “a prose poem,” which is sometimes used?

SECOND YEAR.

ROAD-MAKING, LEVELLING AND SURVEYING.

Examiner—E. LAWRENCE HUNT.

1. Write notes on the *slopes* of a road.
2. Give full directions for the construction of gravel roads, and state the objections to large stones on a road.
3. If a force of 80 lbs. is required to draw a load of 1 ton along the level,
 - (a) What force is required to draw the load up a slope of 1 in 15?
 - (b) What fraction of the load could be drawn up a slope of 1 in 20, with a force of 80 lbs.
4. Distinguish *true* and *apparent* level.
 - (a) If A and B are five miles apart, and on the same *apparent* level; find the height of A above the point of true level with B.
 - (b) If they are 100 yds. apart.
 - (c) If a trench be dug from A to B (See A), how would the water appear in the trench?
5. Complete the following field-book and determine the relative heights of A and F, and draw a sketch of the line :—

Stations.	Distances.	Back-Sights.	Fore-Sights.	Ascents.	Descents.	Total Heights.
A						
B	140	5.50	2.75			
C	60	7.60	1.80			
D	160	3.00	6.45			
E	35	1.30	7.00			
F	80	3.50	3.85			

6. Indicate the measurements you would take to determine the area of the field represented by the accompanying outline.

Record your measurements in the field-book, and complete the area, using your own figures. (The distance from A to B, through C, is 12 chains).

APPENDIX 3.

CLASS LISTS:

I.—EASTER EXAMINATIONS, 1886.

II.—MIDSUMMER EXAMINATIONS, 1886.

I.—EASTER EXAMINATIONS, 1886.

FIRST YEAR.

CLASSES.		AGRICULTURE.	LIVE STOCK.	JUDGING CATTLE. (Oral Exam.)	JUDGING SHEEP. (Oral Exam.)	INORGANIC CHEMISTRY.
HONOURS.	I.	1 Sleightholm, J.	1 { Scrugham.	.....	.....	1 Scrugham.
		2 Scrugham, J. G.	2 { Sleightholm.	.....	.....	2 Lick.
		3 Lick, E.	3 Donald.	.....	.....	3 Sleightholm.
		.....	4 { Hart, J. W.	.....	.....	4 Orsman.
		.....	4 { Lick.	.....	.....	5 Donaldson.
		.....	.....	.....	.....	6 Pady.
		.....	.....	.....	.....	7 Craig, J. A.
		.....	.....	.....	.....	8 Hart, J. W.
	II.	1 Donald, J. C.	1 { Ledingham.	1 Sleightholm.	.....	1 Johnston.
		2 Hart, J. W.	2 { Johnston.	{ Scrugham.	.....	2 Paterson.
		3 Ledingham, A.	3 { Creelman.	{ Lick.	.....	3 Ewing.
		4 Creelman, G. C.	3 { Morgan.	2 { Hart, J. W.	.....	4 Gilbert.
		5 Gilbert, W. J.	5 Marsh.	{ Donald.	.....	5 Livesey.
		6 Morgan, J. H.	6 { Acres.	{ Bishop.	.....	6 Ledingham.

CLASS LISTS (EASTERN EXAMINATIONS)—Continued.

FIRST YEAR.

CLASSES.	AGRICULTURE.	LIVE STOCK.	JUDGING CATTLE. (Oral Exam.)	JUDGING SHEEP. (Oral Exam.)	INORGANIC CHEMISTRY.
PASS.	1 { White, S. A. Williams, J. B. Farlinger, T. Orsman, C. P. Ritchie, H. McCallum, E. G. Acres, A. J. Pady, W. J. Davidson, J. F.	1 Craig, J. A. 2 Meikle. 3 Ewing. 3 Coutts. 5 Schofield. 6 Bowie. 6 Birdsall. 8 Davidson. 8 Williams. 8 Smithers.	1 { Schofield. Orsman. Meikle. Gilbert. 5 Smithers. Creelman. Davidson. 6 Graham. King. White.	1 { Lick. Morgan. 3 Creelman. 4 Donald. 5 Leavens. 6 Hart, J. W. 7 Donaldson. 8 Howes. 9 McCallum. 10 McIntosh. 11 Paterson. 12 Knowlton. 13 Craig, J. A. 14 Johnston. 15 Miller. 16 Meikle. 17 Ritchie. 18 Furness.	1 Creelman. 2 Leavens. 3 Morgan. 4 Howes. 5 Meikle. 6 Bowie. 7 Davidson. 8 Williams. 9 Harkness. 10 Knowlton. 11 Lea. 12 Leslie. 13 Ritchie. 14 McNiven. 15 Birdsall. 16 Acres. 17 Schofield.
	10 Marsh, G. F. Harkness, A. D. Howes, J. O. Ewing, W. Leavens, D. H. Paterson, B. E. Johnston, J. F. 17 Knowlton, S. M. 18 { Brush, G. R. Schofield, E. A. 20 Livesey, E. M. Scott, J. A. 21 Coutts, W. F. Smithers, H. S. 24 McDonald, P. F. Leslie, J. R. 26 Lyster, G. R. Graham, G. M. 28 Furness, D. 29 { Meikle, W. F. Donelly, P. E. McIntosh, W. Lea, H. F.	10 { Donaldson. Miller. 12 Paterson. Bishop. Leslie. 16 Orsman. 18 Howes. 18 Lyster. 19 Leavens. 20 McNiven. 21 Livesey. 21 McCallum. 23 Brush. 23 Graham. 25 McDonald. 26 Furness. 26 Ritchie. 28 Farlinger. 29 Harkness. 30 Lea. 31 Knowlton. 32 Scott. Donelly. McIntosh.	11 Farlinger. Robertson. McCallum. Leslie. 12 { Birdsall. Brush. Coutts. Furness. 19 { Donaldson. Scott. Craig, J. A. Johnston. 21 { McNiven. Pady. Craig, D. J. 26 Howes. 27 Harkness. Williams. 28 { Acres. Donelly. 31 { Livesey. Lyster. 33 { Lea. McDonald. McIntosh. 35 Ritchie.	11 Paterson. 12 Knowlton. 13 Craig, J. A. 14 Johnston. 15 Miller. 16 Meikle. 17 Ritchie. 18 Furness. 19 Acres. 20 Donelly. 21 Lyster. 22 Bishop. 23 Ledingham. 24 Davidson. 25 Robertson. 26 McNiven. 27 Leslie. 28 Pady. 29 Bowie. 30 Scott. 31 { Hart, J. A. Sleightholm. 33 King. 34 Farlinger. 35 Schofield. 36 Orsman. 37 Scrugham. 38 Ewing. 39 White. 40 Coutts. 41 Gilbert. 42 Williams. 43 Brush. 44 Harkness. 45 Birdsall. 46 Marsh. Smithers. Graham. Lea. Livesey. McDonald.	Graham. Smithers. Brush. McIntosh. Miller. Farlinger. Coutts. White. Furness. Donelly. McDonald Lyster. Scott.
III.					

Names unnumbered are those of students who failed to pass in the subject.

The minimum for first-class honours is 75 per cent. ; for second class honours, 60 per cent.; for pass, 33 per cent.

CLASS LISTS (EASTER EXAMINATIONS)—*Continued.*


FIRST YEAR.

CLASSES.	ORGANIC CHEMISTRY.	ZOOLOGY.	VETERINARY ANATOMY.	ENGLISH LITERATURE.	ENGLISH COMPOSITION.
HONOURS.	I.	I.	I.	I.	I.
	1 Scrugham. 2 Craig, J. A. 3 Sleightholm. 4 Lick. 5 Hart, J. W. 6 Ledingham. 7 Orsman. 8 Donaldson. 9 Bishop. 10 Livesey. 11 Pady.	1 Scrugham. 2 Sleightholm. 3 King. 4 Craig, J. A. 5 Pady. 6 Johnston. 7 Donaldson. 8 Ledingham. 9 Marsh. 10 Lick. 11 Donald. 12 Paterson. 13 { Hart, J. W. { Gilbert.	1 Scrugham. 2 Lick. 3 Bishop. 4 Sleightholm. 5 King.	1 Scrugham. 2 Donaldson. 3 { Donald. { Sleightholm. 4 Ledingham. 5 Lick. 6 Hart, J. W. 7 Johnston. 8 Morgan. 9 Craig, J. A. 10 Pady. 11 Paterson. 12 King.	1 Donald. 2 { Scrugham. { Hart, J. W. 3 Johnston. 4 Sleightholm. 5 Donaldson. 6 Pady.
HONOURS.	II.	II.	II.	II.	II.
	1 Gilbert. 2 Paterson. 3 Ewing. 4 Meikle. 5 King. 6 Marsh. 7 Johnston. 8 Hart, J. A. 9 Leslie. 10 Morgan. 11 Creelman. 12 Harkness.	1 Bishop. 2 Ewing. 3 Ritchie. 4 Livesey. 5 Hart, J. A. 6 Morgan. 7 Orsman. 8 Howes. 9 Graham. 10 Creelman.	1 Hart, J. W. 2 Ledingham. 3 Paterson. 4 Pady. 5 Craig, J. A. 6 Donald.	1 Graham. 2 Bishop. 3 { Coutts. { Williams. 4 Gilbert. 5 Ewing. 6 { Acres. { Creelman. 7 Marsh. 8 Livesey. 9 Meikle. 10 Ritchie. 11 Leslie. 12 Bowie.	1 Lick. 2 Ledingham. 3 Craig, J. A. 4 Morgan. 5 King. 6 Ewing. 7 Creelman. 8 Bishop. 9 Paterson.

CLASS LISTS (EASTER EXAMINATIONS)—*Continued.*

FIRST YEAR.

CLASSES.	ORGANIC CHEMISTRY.	ZOOLOGY.	VETERINARY ANATOMY.	ENGLISH LITERATURE.	ENGLISH COMPOSITION.
PASS.	1 Donald.	1 Harkness.	1 Ewing.	1 Hart, J. A.	1 Orsman.
	2 Howes.	2 Brush.	2 Gilbert.	2 { Schofield.	2 Hart, J. A.
III.	3 Leavens.	3 Lealie.	3 { Donaldson.	2 { Orsman.	3 Gilbert.
	4 Acres.	4 Meikle.	3 { Howes.	4 Scott.	4 Davidson.
	5 McNiven.	5 { Birdsall.	5 Meikle.	5 Howes.	5 McCallum.
	6 Knowlton.	6 { Acres.	6 Knowlton.	6 Smithers.	6 Meikle.
	7 Williams.	7 McCallum.	7 Morgan.	7 Davidson.	7 Howes.
	8 Birdsall.	8 Davidson.	8 Marsh.	8 Brush.	8 Coutts.
	9 McCallum.	9 Williams.	9 Hart, J. A.	9 Leavens.	9 Williams.
	10 Davidson.	10 Smithers.	10 Johnston.	10 { Harkness.	10 Livesey.
	11 Ritchie.	11 White.	11 { Davidson.	10 { Donnelly.	11 Schofield.
	12 Schofield.	12 Schofield.	11 { Livesey.	12 McCallum.	12 Birdsall.
	13 Furness.	13 Furness.	13 { Harkness.	13 Birdsall.	13 Lealie.
	14 Brush.	14 Coutts.	13 { Leavens.	14 McNiven.	14 Scott.
	15 Graham.	15 Bowie.	15 Leslie.	15 Lyster.	15 Bowie.
	White.	16 Knowlton.	16 { Ritchie.	16 White.	16 Harkness.
	Coutts.	17 Leavens.	16 { Williams.	17 { Furness.	17 Lea.
	Bowie.	18 Scott.	16 { Creelman.	17 { Farlinger.	18 Ritchie.
	Lea.	19 { Miller.	McCallum.	19 Knowlton.	19 Brush.
	Donnelly.	19 { McNiven.	Lyster.	20 Miller.	20 Marsh.
	Smithers.	McIntosh.	Farlinger.	McIntosh.	21 Leavens.
	Miller.	Lyster.	Coutts.	McDonald.	22 Graham.
	McDonald.	McDonald.	Acres.	Lea.	23 Farlinger.
	Scott.	Donelly.	White.	.....	24 Knowlton.
	McIntosh.	Farlinger.	Graham.	.....	McDonald.
	Farlinger.	Lea.	Lea.	.....	Acres.
	Lyster.	.....	McIntosh.	.....	White.
	.....	.....	Scott.	.....	Smithers.
	.....	.....	Brush.	.....	Donelly.
	.....	.....	Orsman.	.....	Furness.
	.....	.....	Bowie.	.....	McIntosh.
	.....	.....	Miller.	.....	Miller.
	.....	.....	Donelly.	.....	McNiven.
	.....	.....	Schofield.	.....	Lyster.
	.....	.....	McDonald.	.....	.....
	.....	.....	Smithers.	.....	.....
	.....	.....	Furness.	.....	.....
	.....	.....	McNiven.	.....	.....

 Names unnumbered are those of students who failed to pass in the subject.

The minimum for first class honours is 75 per cent. ; for second class honours, 60 per cent. ; for pass, 33 per cent.

[illegible]

First-class men in General Proficiency must obtain at least 75 per cent. of the total number of marks; second-class men at least 60 per cent. of the total number of marks. First-class men in any department must obtain at least 75 per cent. of the marks allotted to the subjects in that department.

CLASS LISTS (EASTER EXAMINATIONS)—*Continued.*

SECOND YEAR,

CLASSES.	AGRICULTURE.	LIVE STOCK.	ARBORICULTURE.	JUDGING CATTLE. (Oral Exam.)	JUDGING SHEEP. (Oral Exam.)
HONOURS.	I.	1 Brown, C. R. 2 Sturge, E. 3 { Zavitz, C. A. { Madge, R. W. 5 Owen, W. H.	1 Zavitz. 2 Madge. 3 Brown. 4 Sturge.	1 Brown. 2 Zavitz. 3 Sturge.	1 { Idington. { Sturge. 3 Madge. 4 { Owen. { Zavitz.
	II.	1 Calvert, S. 2 McKay, J. G. 3 { Fee, J. J. { Holtby, R. M. 5 Idington, P. S. 6 { Power, R. H. { Jeffrey, J. S. { Watts, W. G.	1 Walter. 2 Watta. 3 Owen. 4 McKay. 5 { Fee. { Broome. 6 { Poe. { Craig, H. 8 { Calvert. { Holtby. 9 { Jeffrey.	1 Madge. 2 { Owen. { Fee. 4 Broome. 5 { Power. { Calvert. 7 McKay.	1 Holtby. 2 Macfarlane. 3 { Broome. { Fee. 3 { Jeffrey. { Notman. { McKay.
PASS.	III.	1 Menzies, R. M. 2 Macfarlane, A. D. 3 Notman, C. R. 4 { Cobb, C. { Broome, A. H.	1 { Cobb. { Notman. 3 Macfarlane. 4 { Power. { Idington. { Menzies.	1 Holtby. 2 { Watts. { Notman. 4 Jeffrey. 5 { Idington. { Cobb. { Menzies. 8 Macfarlane.	1 Power. 2 Cobb.
					1 { Watts. { Menzies. 1 { Broome. { Holtby. { Jeffrey. 6 { Cobb. { McKay.

CLASS LISTS (EASTER EXAMINATIONS)—*Continued.*

SECOND YEAR.

CLASSES.					
	AGRICULTURAL CHEMISTRY.	ENTOMOLOGY.	VETERINARY PATHOLOGY.	JUDGING HORSES.	ENGLISH LITERATURE.
HONOURS.	I. 1 Madge. 2 Sturge. 3 Brown. 4 Zavitz. 5 Owen.	1 Madge. 2 Sturge. 3 Brown. 4 Owen. 5 Zavitz. 6 Fee.	1 Owen. 2 Madge. 3 Sturge. 4 Zavitz.	1 Owen. 2 Holtby. 3 Craig. 4 Sturge. 5 Poe. 6 Walter.	1 Calvert. 2 Madge. 3 Owen. 4 Sturge. 5 Watts.
	II. 1 Fee. 2 Calvert. 3 Cobb. 4 Holtby. 5 McKay.	1 Holtby. 2 Calvert. 3 Watts. 4 Jeffrey. 5 Power. 6 Cobb. 7 Idington.	1 Holtby. 2 Walter. 3 Brown. 4 Calvert. 5 McKay.	1 { Brown. { Madge. 3 Jeffrey. 4 Zavitz. 5 Calvert.	1 { Broome. { Fee. 3 Zavitz. 4 { Brown. { Holtby. 6 Cobb. 7 McKay. 8 Jeffrey.
PASS.	III. 1 Jeffrey. 2 Watts. 3 Notman. 4 Menzies. 5 Power. 6 Idington. 7 Broome. 8 Macfarlane.	1 Broome. 2 Notman. 3 McKay. 4 Menzies. 5 Macfarlane.	1 Fee. 2 Poe. 3 Jeffrey. 4 { Power. { Idington. 6 Watts. 7 Craig. 8 Cobb. 9 Notman. 10 Broome. Menzies. Macfarlane.	1 Fee. 2 McKay. 3 Menzies. 4 Watts. 5 { Idington. { Power. 7 Notman. 8 Macfarlane. 9 Broome. 10 Cobb.	1 Power. 2 Notman. 3 { Idington. { Macfarlane. Menzies.

Names unnumbered are those of students who failed to pass in the subject.

CLASS LISTS (EASTER EXAMINATIONS)—*Continued.*

SECOND YEAR.

[illegible]

Only those who pass in every subject are ranked in General Proficiency.

First-class men in General Proficiency must obtain at least 75 per cent. of the total number of marks; second-class men at least 60 per cent. of the total number of marks.

First-class men in any department must obtain at least 75 per cent. of the marks allotted to the subjects in that department.

CLASS LISTS.

II.—MIDSUMMER EXAMINATIONS, 1886.

FIRST YEAR.

CLASSES.		AGRICULTURE.	DAIRYING.	GEOLOGY.	BOTANY.	VETERINARY MATERIA MEDICA.
I.		1 Sleightholm, J. 2 Scrugham, J. G. 3 Lick, E. 4 Donald, J. C. 5 Morgan, J. H. 6 { Creelman, G. C. Hart, J. W.	1 Donaldson. 2 Scrugham. 3 { Ewing. Hart, J. W. 5 Craig, J. A. 6 McCallum. 7 Lick. 8 Elton. 9 { Morgan. Pady.	1 King. 2 Scrugham. 3 Elton. 4 Craig, J. A.	1 Scrugham. 2 Craig, J. A. 3 { King. Elton. 5 Lick. 6 Morgan.	1 Scrugham. 2 Hart, J. W. 3 King. 4 Lick. 5 { Sleightholm. Donald. 7 Craig, J. A.
II.		1 Ewing, W. 2 Craig, J. A. 3 Elton, C. W. 4 King, R. E. 5 { Donaldson, F. N. Pady, W. J. 7 Howes, J. S. 8 { Bishop, W. R. Gilbert, W. J.	{ Bishop. Donald. Gilbert. 4 How. es. 5 Paterson. 6 Williams. 7 Schofield. 8 Hart, J. A. Sleightholm. 9 { Scott. Creelman. King. 12 { Meikle. Orsman. 14	1 Paterson. 2 Ewing. 3 Hart, J. W. 4 Howes. 5 Morgan. 6 Donaldson. 7 Creelman. 8 { Sleightholm. Pady. 10 Bishop.	1 Sleightholm. 2 { Ewing. Donaldson. 4 Gilbert. 5 Hart, J. W. 6 Paterson. 6 { Williams. 8 Livezey. 9 Pady. 10 McCallum. 11 Orsman.	1 Elton. 2 Morgan. 3 Pady. 4 Hart, J. A. 5 Creelman. 6 Gilbert. 7 Bishop.

CLASS LISTS (MIDSUMMER EXAMINATIONS)—*Continued.*

FIRST YEAR.

CLASSES.		AGRICULTURE.	DAIRYING.	GEOLOGY.	BOTANY.	VETERINARY MATERIA MEDICA.
PASS.	III.	1 Bayne, S. R.	1 Leavens.	1 Lick.	1 { Bayne.	1 { Paterson.
		2 Hart, J. A.	2 Bayne.	2 { Bayne.	1 { Creelman.	1 { Howes.
		3 { McCallum, E. G.	3 { Coutts.	2 { Gilbert.	3 Bishop.	3 Orsman.
		3 { Williams, J. B.	3 { Harkness.	4 Livesey.	4 Hart, J. A.	4 Ewing.
		3 { Harkness, A. D.	5 Sullivan.	5 Williams.	5 Donald.	4 Livesey.
		6 Meikle, W. F.	5 { Livesey.	6 McCallum.	6 Harkness.	6 { McCallum.
		6 { Livesey, E. M.	6 { Smithers.	7 Meikle.	7 Howes.	6 { Donaldson.
		6 { Paterson, B. E.	Price.	8 Donald.	8 Schofield.	8 Williams.
		8 Coutts, W. F.	8 Furness.	9 Warner.	9 Leavens.	9 Meikle.
		8 { Miller, J. R.	8 Donnelly.	10 Harkness.	10 Meikle.	10 Coutts.
		11 Schofield, E. A.	Miller.	11 Hart, J. A.	11 Coutts.	10 { Leavens.
		11 { Orsman, C. P.	{ Graham.	12 Schofield.	12 DeMauritz.	12 { Harkness.
		13 Scott, J. A.	12 { Lyster.	13 Coutts.	13 Price.	12 { Smithers.
		14 { Sullivan, R.	{ Kellogg, W. J.	14 Sullivan.	14 Miller.	14 { DeMauritz.
		14 { Warner, F. C.	15 DeMauritz.	15 Orsman.	15 McDonald.	14 { Schofield.
		16 Lyster, G. R.	16 { Kellogg, C. A.	16 Leavens.		14 { Price.
		16 { Smithers, A. S.	16 { McDonald.	17 Graham.		14 { Miller.
		16 { Leavens, D. H.	18 Warner.	18 Price.		
		18 { Kellogg, C. A.	Taylor.	19 DeMauritz.		Sullivan.
		18 { McDonald, P. F.	.....			Warner.
21 Kellogg, W. J.	.....	Scott.		Smithers.		
22 Graham, G. M.	.....	Donnelly.		Donnelly.		
23 Furness, D.	.....	Kellogg, C. A.		Furness.		
24 DeMauritz, R.	.....	Smithers.		Kellogg, W. J.		
	Price, V.	Taylor.		Donnelly.		
	Taylor, F. O.	McDonald.		Taylor.		
	Donnelly, P. E.	Kellogg, W. J.		Scott.		
	.....	Furness.		McDonald.		
	.....	Miller.		Kellogg, C. A.		
	.....	Lyster.		Lyster.		
	.....			Bayne.		
	.....			Graham.		

Names unnumbered are those of students who failed to pass in the subject.

The minimum for first-class honours is 75 per cent. ; for second-class honours, 60 per cent. ; for pass, 33 per cent.

CLASS LISTS (MIDSUMMER EXAMINATIONS)—*Continued.*

FIRST YEAR.

CLASS.	ENGLISH LITERATURE.	MENSURATION.	GENERAL PROFICIENCY.	DEPARTMENTS.	FIRST-CLASS MEN IN THE DEPARTMENTS.		
HONOURS.	II.	1 Scrugham.	1 Lick.	I.	AGRICULTURE AND DAIRYING.	1 Scrugham.	
		2 Elton.	2 Scrugham.			2 Hart, J. W.	2 Lick.
		3 Hart, J. W.	3 Hart, J. W.			3 Lick.	3 Hart, J. W.
		4 Donaldson.	4 Howes.			4 King.	4 { Ewing. Morgan. Donald.
		5 Donald.	5 De Mauritz.				7 Donaldson.
		6 Pady.					
		7 King.					
		8 Sieghtholm.					
I.	1 Pady.	1 Hart, J. A.	1 Sleightholm.	II.	NATURAL SCIENCE.	1 King.	
	2 Sleightholm.	2 Harkness.	2 Craig, J. A.			2 Scrugham.	
	3 Gilbert.	3 Orsman.	3 Elton.			3 Elton.	
	4 DeMauritz.	4 Bishop.	4 Pady.			4 Craig, J. A.	
	5 { Craig, J. A. Lick.	5 Donaldson.	5 Morgan.				
	7 King.		6 Donald.				
			7 Donaldson.				
			8 Ewing.				
			9 Creelman.				
			10 Gilbert.				
		11 Bishop.					
		12 Howes.					
PASS.	III.	1 Creelman.	1 Hart, J. A.	III.	VETERINARY SCIENCE.	1 Scrugham.	
		2 Bishop.	2 Paterson.			2 Hart, J. W.	
		3 Morgan.	3 McCallum.			3 King.	
		4 Ewing.	4 { McCallum. Craig, J. A.			4 Lick.	
		5 Paterson.	4 Elton.			5 Sleightholm.	
		6 Hart, J. A.	7 { Donald. McDonald.			6 Donald.	
		7 Price.	9 Gilbert.			7 Craig, J. A.	
		8 Harkness.	10 Morgan.				
		9 Howes.	11 Schofield.				
		10 Meikle.	12 Bayne.				
11 Williams.	13 Livesey.						
12 Orsman.	14 Kellogg, C. A.						
13 { McCallum. Sullivan.	15 Miller.						
16 Graham.	16 Kellogg, W. J.						
17 Schofield.	17 Patterson.						
18 Leavens.	18 Sullivan.						
19 Scott.	19 Leavens.						
	Warner.			IV.	ENGLISH LITERATURE.	1 Scrugham.	
	Furness.					2 Elton.	
	Bayne.					3 { Donaldson. Hart, J. W.	
	Coutts.					5 Donald.	
	Taylor.						
	Lyster.						
	Miller.						
	Kellogg, W. J.						
	McDonald.						
	Donelly.						
	Kellogg, C. A.				V.	MATHEMATICS.	1 { Lick. Scrugham.
	Smithers.			3 Hart, J. W.			
				4 Howes.			
				5 De Mauritz.			
				6 Pady.			
				7 King.			
				8 Sleightholm.			

Names unnumbered are those of students who failed to pass in the subject.

Only those who pass in every subject are ranked in General Proficiency.

First-class men in General Proficiency must obtain at least 75 per cent. of the total number of marks
second-class men, at least 60 per cent. of the total number of marks.

First-class men in any department must obtain at least 75 per cent. of the marks allotted to the subjects in that department.

CLASS LISTS (MIDSUMMER EXAMINATIONS)—*Continued.*

SECOND YEAR.

CLASSES.		AGRICULTURE.	DAIRYING.	PRACTICAL HORTICULTURE.	SYSTEMATIC AND ECONOMIC BOTANY.	METEOROLOGY.
HONOURS.	I.	1 Brown, C. R. 2 Sturge, E. 3 Zavitz, C. A. 4 Madge, R. W.	1 Brown. 2 Madge. 3 { Zavitz. { Sturge. 5 Owen.	1 Madge. 2 Sturge. 3 Brown. 4 Zavitz. 5 Owen. 6 Calvert.	1 Madge. 2 Sturge. 3 Owen. 4 Brown. 5 Zavitz. 6 Fee.	1 Sturge. 2 Madge. 3 Brown. 4 Zavitz. 5 Owen.
	II.	1 Owen, W. H. 2 Acres, A. G. 3 Jeffrey, J. S.	1 Jeffrey. 2 Acres. 3 { Holtby. { Fee. 5 Calvert. 6 Power. 7 Idington.	1 Fee. 2 Power. 3 Cobb. 4 Holtby.	1 Calvert. 2 Cobb.	1 Calvert. 2 Fee. 3 Holtby. 4 Jeffrey.
PASS.	III.	1 Calvert, S. { Power, R. H. { Cobb, C. 2 { Macfarlane, A. D { Idington, P. S. 6 White, S. A. 7 { Birdsall, W. G. { Menzies, R. M. { Fee, J. J. 10 Notman, C. R. 11 { Holtby, R. M. { Ritchie, H.	1 Macfarlane. 2 Menzies. 3 Notman. 4 Ritchie. 5 White. 6 Cobb. 7 Birdsall.	1 Notman. 2 Birdsall. 3 Acres. 4 Menzies. 5 Jeffrey. 6 Ritchie. 7 Idington. 8 Macfarlane. White.	1 Holtby. 2 Power. 3 Acres. 4 Jeffrey. 5 Menzies. 6 Ritchie. 7 Notman. 8 Birdsall. 9 Idington. 10 Macfarlane. 11 White.	1 Birdsall. 2 { Ritchie. { Power. 4 Cobb. 5 Idington. 6 Notman. 7 Menzies. 8 Macfarlane. 9 White. 10 Acres.

Names unnumbered are those of students who failed to pass in the subject.

CLASS LISTS (MIDSUMMER EXAMINATIONS).—Continued.

SECOND YEAR.

CLASSES.	ANALYTICAL CHEMISTRY.	VETERINARY MATERIA MEDICA.	BREEDS OF HORSES.	ENGLISH LITERATURE.	ROAD-MAKING, LEVELING, AND SURVEYING.
HONOURS.	I. 1 Madge. 2 Zavitz. 3 Sturge.	1 Brown. 2 Sturge. 3 Owen. 4 Madge. 5 Jeffrey.	1 Brown. 2 Sturge. 3 Madge. 4 Owen.	1 Madge. 2 Owen. 3 Sturge. 4 Calvert. 5 Brown.	1 { Madge. Zavitz.
	II. 1 Fee. 2 Owen. 3 Calvert. 4 Cobb. 5 Brown.	1 Holtby. 2 Birdsall.	1 Calvert. 2 Holtby. 3 Jeffrey.	1 Fee. 2 Holtby. 3 Cobb. 4 Zavitz. 5 Jeffrey. 6 Acres.	1 Sturge. 2 Brown.
PASS.	III. 1 Ritchie. 2 Holtby. 3 Birdsall. 4 Jeffrey. 5 Power. 6 Notman. 7 Macfarlane. 8 Acres. 9 Menzies. 10 Idington. 11 White.	1 Cobb. 2 Zavitz. 3 Fee. 4 { Calvert. Macfarlane. 6 Idington. 7 Power. 8 Notman. Ritchie. Acres. White. Menzies.	1 { Fee. Idington. 3 Zavitz. 4 Power. 5 { Cobb. Acres. 7 { Menzies. Notman. Birdsall. Macfarlane. White. Ritchie.	1 Ritchie. 2 Idington. 3 Birdsall. 4 Macfarlane. 5 Power. 6 Menzies. 7 Notman. White.	1 Owen. 2 Holtby. 3 Fee. 4 Jeffrey. 5 Calvert. 6 Birdsall. 7 Cobb. 8 { Notman. Idington. 10 Power. Macfarlane. Acres. Menzies. White. Ritchie.
CLASSES.	GENERAL PROFICIENCY.	DEPARTMENT.		DEPARTMENT.	FIRST-CLASS MEN IN THE DEPARTMENTS.
I.	1 Madge. 2 Sturge. 3 Brown. 4 Zavitz.	I.	AGRICULTURE AND DAIRYING.	IV.	1 Brown. 2 Sturge. 3 Madge. 4 Zavitz.
II.	1 Owen. 2 Holtby.	II.	NATURAL SCIENCE.		1 Madge. 2 Sturge. 3 Zavitz. 4 Owen.
III.	1 Jeffrey. 2 Fee. 3 Calvert. 4 Power. 5 Notman. 6 Cobb. 7 Idington.	III.	VETERINARY SCIENCE.	V.	1 { Madge. Zavitz.

Names unnumbered are those of students who failed to pass in the subject.

Only those who passed in every subject are ranked in general proficiency.

First-class men in general proficiency must obtain at least 75 per cent. of the total number of marks; second-class men at least 60 per cent. of the total number of marks. First-class men in any department must obtain at least 75 per cent. of the marks allotted to the subjects in that department.

APPENDIX 4.

COLLEGE IN ACCOUNT WITH FARM AND GARDEN.

(a) WITH FARM.

To 3 20 bags potatoes, at 55c	\$176 00
" 3,738 gallons milk, at 12c	448 56
" Cartage for College	20 00
" Feed of College horse (without attendance)	75 00
" Feed of Matron's horse (without attendance)	75 00
" Carpenter work, etc., by students	20 00
	\$814 56

(b) WITH GARDEN.

To fruit and vegetables (for items and prices, see Mr. Forsyth's report, Part VII)	634 98
	\$1,449 54
By amount paid by College for Students' labour on farm and garden	2,939 70
	\$1,490 16

In addition to this, all College work done by the Farm Carpenter has been deducted from the Farm Expenditure and charged to the College, under the head of "Maintenance and Repairs of Government Buildings."

PART II.

REPORT

OF THE

PROFESSOR OF NATURAL HISTORY AND GEOLOGY.

ONTARIO AGRICULTURAL COLLEGE,

GUELPH, December 31st, 1886.

To the President of the Ontario Agricultural College :

SIR,—In submitting to you a report of the Department of Natural History, it will be convenient to consider it under the following topics :—

1. Museum.
2. Library.
3. Reading-room.
4. Practical work.
5. Lectures.

1. COLLEGE MUSEUM.

A Museum for an Agricultural College should partake more largely of an instructive character than for the gratification of public curiosity; while it may, to a certain extent, possess features of popular interest; still these should be subservient to the objects of instruction. Our museum hitherto has been an attempt to satisfy the ordinary sight-seer who visits the College from time to time. Many of the specimens are foreign to the Province, and serve in a very indirect way to instruct our students. During the past year an attempt has been made to render the collection more instructive, by altering the arrangement and adding specimens of more practical value in advancing the education of students in agriculture. The collection is so arranged that students may come from the lecture-room and observe illustrations of the subjects discussed. By a proper use of these facilities, inquiring, thoughtful young men have impressed upon their minds much of the instruction received in the class-room. There is no doubt, that the more we can illustrate our lectures by specimens, easy of access, the more successful we will be in developing an interest in the different studies of our curriculum. To effect this, we should make our collection of specimens largely provincial and closely associated with the instruction imparted.

While it is gratifying to mark the progress in the number, character and arrangement of our specimens, I regret to have to direct your attention to the inferior condition of the room itself, which at the present time is in sad want of repair, and equipped with cases which take up much space and display but little.

I hope you will be able to impress those who have means at their disposal to do something to improve the accommodation and equipment of the room. The introduction

of more modern cases, the raising of the roof, and construction of a gallery around the sides, would effect most satisfactory results in the appearance and utility of this valuable adjunct to college work. I am quite confident, if we could secure these necessary improvements we would soon possess a museum unique in its character, as an important factor in the progress of agricultural education, instructive to students and interesting to the ordinary visitor.

During the year we have been indebted to the following for, in some cases, very valuable donations to this department:—

1. J. Townsend, Esq., Durham. Forty specimens of fossils from the Guelph formation.
2. Entomological Society, London, Ont. Three cases of *noxious* insects and one of *beneficial*.
3. R. E. King, student. Twenty-three specimens of fossils from the Oriskany and Corniferous formations of Ontario.
4. S. A. K. White, student. One stuffed squirrel.
5. Messrs. Sutton & Sons, Reading, England. Twenty-four species of grass, beautifully arranged.
6. J. S. Jeffrey, student. An excellent specimen of the moth, *Platysamia Cecropia*.
7. J. A. Hart, student. Specimens of the American Tent-caterpillar (*Clisiocampa Americana*).
8. R. W. Madge, student. Specimens of chess.
9. James Newton, Esq. Economic products from the rocks at Limehouse.
10. J. C. Donald, student. Thirty-six species of shells.
11. A. Gilchrist, Esq. Thirty-five varieties of fruit, and twenty specimens illustrating bees and their work.
12. J. A. Creelman, ex-student. A collection of plants illustrating the *flora* of the North-west.
13. Messrs. Hart, J. W., Warner, F. C., Livesey, E. M., Bayne, S. W., Scrugham, J. G., Creelman, G. C., Kellogg, W. J., Craig, J. A., Paterson, B. E., and Bishop, W. R. students. Specimens from outcrops visited by the class in geology.
14. Prof. J. Hoyes Panton. Specimens of the seeds of fifty-four different species of weeds; ten fragments of boulders; four injurious microscopic plants, and thirty-five illustrating the development of some noxious insects.
15. Messrs. F. & A. Dickson & Sons, Chester, England. Thirty-two species of grasses mounted and named.
16. J. A. Craig, student. A collection of grasses showing the whole plants.
17. C. Zavitz, ex-student. A collection of weeds illustrating the nature of the roots.

Our geological specimens are arranged in the crude cases we have, so as to give an idea of the different systems in the series of rocks as well as the minerals and fossils found in them, together with rocks that form the earth's crust and the minerals of which they are composed.

Each case represents a system. These are so arranged, that by commencing at one side and passing to the left, the sixteen systems in the geological series pass in review, each with its characteristic fossils.

By this means our students soon become familiar with the rocks which have been important factors in the formation of soil. One case is devoted to popular geology. In this no scientific names are employed; every specimen is labelled with some common name by which it can readily be understood as regards its character and formation.

The collection of birds is classified and labelled as far as we have been able, so as to be of practical use to students. The birds that are beneficial and injurious being placed in separate groups, thus enabling the student to observe at once the farmer's friends and foes. We have also during the past year advanced in the arrangement of the specimens

used in the study of economic entomology. The noxious and beneficial insects being in separate cases and labelled, so that the insects affecting the different kinds of fruits, vegetables, etc., are at once recognized by their common and scientific names. In addition to the specimens of mature insects, many larval forms have been added, so that at a glance the life history of some of our insect pests is readily understood. Our object is to make this collection as instructive as possible, by having specimens of egg, larva, pupa and imago, together with illustrations of how they affect farm crops, etc.

As soon as suitable accommodation is secured, a collection of fruits will be made, consisting of typical forms illustrating the fruits of Ontario. These will be preserved in a condition which will enable the students to compare with little difficulty the fruits discussed in lectures on Horticulture.

An examination of the list of donors to our museum, shows a greater interest on the part of the students than in any former year, and indicates that when we are ready to receive specimens and place them in proper cases, it will not be long before the museum is a credit to our College and to the wealthy Province in which it is located. If we fail to make the improvements suggested, we can scarcely expect to reach the ideal of success in this important part of College work.

2. LIBRARY.

The improved arrangement for study in the afternoon of each day is observed, when a comparison of the books taken from the library now, is made with those before the change took place. The faithful, industrious student soon finds there is much to learn in agriculture, and that every moment of time in college life can be profitably employed by taking advantage of the books readily obtained from the library.

The following summary shows the number of books taken out during the respective terms and the departments to which they belong :—

	Winter Term.	Spring Term.	Summer Term.	Fall Term.	Total.	1885.
Agriculture.....	298	194	12	216	720	508
Chemistry.....	24	9	8	27	68	49
Natural History.....	100	72	8	74	254	197
Literature.....	147	65	16	55	283	231
Veterinary.....	48	25	2	65	140	130
Mathematics.....	23	8	....	3	34	30
History.....	66	14	10	25	115	110
Travel.....	21	8	7	8	44	81
Biography.....	30	9	4	4	47	148
Miscellaneous.....	87	62	16	25	190	93
1886.....	844	466	83	502	1895	1577

The library contains at present 5,068 volumes, of which 165 have been added this year. The latter may be grouped as follows :—

Reports, chiefly agricultural.....	68
Natural History, including Botany.....	13
Veterinary.....	2
Agriculture.....	30
Chemistry.....	3
Literature.....	24
Encyclopædias.....	2
Bound Journals.....	8
Directory.....	2
Dairying.....	4
Geology.....	1
History.....	4
Pamphlets.....	4

Although the number of agricultural reports appears large in comparison with that

of other books added during the year, it must be remembered that in many of these some most valuable papers are found, and these are now so indexed that our students can readily find them. On this account these reports may be considered valuable acquisitions to our library, and in many respects almost equivalent to text-books upon agricultural subjects. The library is, no doubt, a very important factor in our work, and, if properly used by the students, will from year to year influence their minds in the line of study and thought.

3. READING-ROOM.

This is one of the most commodious and pleasant rooms in the College, and is becoming yearly more used for the purpose it was intended. It is well furnished for reading and study; excellent tables and chairs, and convenient reading-desks, upon which are found the best agricultural journals published, a list of which is given in this portion of my report.

Rules regarding the proper use of the reading-room are posted in conspicuous places.

It is a pleasure to report that the students take an interest in keeping this room in order, and not turning it into a place for general discussion.

The following is the list of papers, journals and magazines which come to the College, and are for the use of the students in attendance:—

PAPERS AND MAGAZINES.

(a) *Sent free by the Publishers.*

Name.	Where published.
1. Journal of Commerce.....	Montreal.
2. Journal of Agriculture	"
3. Christian Guardian.....	Toronto.
4. Canada Presbyterian	"
5. Mechanical and Milling News	"
6. Monthly Weather Review.....	"
7. Presbyterian Review	"
8. Canadian Lumberman.....	Peterboro'.
9. Manitoba Weekly Free Press	Winnipeg.
10. Canadian Horticulturist.....	St. Catharines.
11. Canadian Entomologist	London, Ont.
12. Weekly Herald	Stratford.
13. Bee Journal.....	Beeton.
14. North York Reformer.....	Newmarket.
15. Acton Free Press.....	Acton.

(b) *Furnished by the College.*

1. The Daily Globe.....	Toronto.
2. " Mail	"
3. " Mercury	Guelph.
4. " Herald	"
5. Rural Canadian	Toronto.
6. Grip.....	"
7. The Week	"
8. Farmers' Advocate.....	London, Ont.
9. Canadian Dairyman	Montreal.
10. Canadian Stock-Raisers' Journal	Hamilton.
11. Nor'-West Farmer	Winnipeg.
12. Popular Science News	Boston.
13. Rural New Yorker.....	New York.
14. Gardeners' Monthly	Philadelphia.

15. Canadian Breeder	Toronto.
16. North British Agriculturist	Edinburgh (Scotland).
17. Farmers' Gazette	Dublin (Ireland).
18. Mark Lane Express	London (England).
19. American Garden	Greenfield (Mass.).
20. American Naturalist	Philadelphia.
21. Veterinary Journal	London (England).
22. Veterinarian	"
23. Cultivator and Country Gentleman	Albany, N.Y.
24. Scientific American	New York.
25. " Supplement	"
26. Live Stock Journal and Fanciers' Gazette	England.
27. Live Stock Journal	Chicago.
28. American Agriculturist	New York.
29. American Dairyman	"
30. Eclectic	"

4. PRACTICAL WORK.

During the past year my efforts in this line of work have been observations made for the purpose of obtaining data necessary for the preparation of bulletins in connection with the Natural History Department.

The results of my work are embodied in the papers in this report on Potato Rot, Hardy Shrubs, Grapes, and the Germination of Seeds.

Some experiments were carried on in connection with a study of the root distribution of plants; together with some yet to be made, will form the subject matter of a future bulletin.

A considerable number of plants have been identified for persons who sent them from different parts of the Province. Among them I find the so-called "French Weed" of the Red River Valley—a most pernicious weed belonging to the same family as the mustard. The specimen sent was from some place near Almonte. In all likelihood it has come in seed wheat from the North-West, and if not kept under or extirpated will prove a troublesome weed. It is sometimes called "Penny Cress" from the shape of its pods, and to botanists is known as *Thlaspi Arvense*.

From near Stratford a specimen of the perennial Sow Thistle (*Sonchus Arvense*) was received. This, too, is a very bad weed, and wherever it appears every effort should be made to destroy it. It is distinguished from the common Sow Thistle, an annual, by the hairy nature of the stem near the flower. The other specimens identified were chiefly common weeds and plants which require no notice. But the appearance of "Penny Cress" and the perennial "Sow Thistle" should be regarded with alarm. Several insects have also been identified for correspondents, and methods given for their destruction.

The following are papers which I have prepared for publication in connection with the College work during 1886:—

THE POTATO ROT—ITS CAUSE AND REMEDIES.

The use of the microscope in the fields of scientific research has revealed much that is of importance to man. Many forms of disease, about whose origin little was known, have had much light shed upon them since this instrument was employed in their study, both among animals and plants. We find now that man is constantly lashed by invisible foes—some attacking himself and others the food which he eats. During the summer and fall of 1885 a striking example of this occurred in the prevalence of the so-called "potato rot," which has proved a great loss throughout the Province and in many parts of the United States. In the bulletin issued in November from the Bureau of Industries, we learn that the "rot" prevailed throughout the whole southern belt of the Province. In many cases one-half to three-fourths of the crop was destroyed, and in some it was not worth digging. With such disaster around us, the questions are naturally suggested, what is the cause of the "rot," and what remedies can be adopted?

Cause.—This disease has received a great deal of attention from botanists since the days when it became a scourge in Ireland and other parts of the British Isles; and it is now conceded to be the result of a minute fungus, *Phytophthora infestans*. This attacks all parts of the plant—leaf, stem and tubers. By those ignorant of the life history of this tiny parasitic plant little attention is paid to its appearance on the tops, and no alarm is experienced until the potatoes are effected. But being very contagious, its presence on the leaves should become a serious matter, especially when we remember that it spreads with great rapidity. It is usually indicated by the tops presenting a blotched, brownish, spotted, dead appearance. A close examination of the potatoes showing this will discover innumerable slender stems growing up out of the surface of the leaves and stems of the affected plants. These branch and swell out at the ends into pear-shaped minute bodies (spores), which are produced by millions. When ripe they separate from the stem and being exceedingly light pass into the atmosphere, where they are wafted about, many of them finally reaching the ground or settling upon plant. Under favourable conditions of moisture and heat, the contents of a microscopic spore may push out a long minute tube, which can penetrate into any part of the potato plant, and give rise to the fungus; or may separate into several distinct portions (swarm spores) which burst through the spore-wall and become the source of the parasitic plant. The mature plant which lives in the tops and tubers is very minute, and can be seen only by the aid of the microscope. It consists of many colourless, branching, thread-like structures. These penetrate the tissues of the potato and feed upon the juices, so that it soon weakens and begins to waste away. From the thread-like structures tiny stalks arise, assuming beautiful plant-like forms and bearing upon their branches the spores already referred to. They live but a short time, but the thread-like structure is perennial and hardy, and from fragments of it new fungi may arise. It is said by some that another kind of spore is produced which can winter, and thus give rise to the organism in another season. These are the so-called resting spores, apparently for the purpose of keeping the species over certain periods, while the spores already considered are produced rapidly, so as to hasten the spread of the fungus under favourable conditions. This minute microscopic plant is certainly a low form of vegetable life, incapable of manufacturing food from the mineral kingdom, but fastening upon other plants and feeding upon their juices. A wet season supplies conditions well adapted for its development, and hence we find the “rot” associated with such weather. There is no doubt that many spores are always more or less present, but they are prevented from being a source of trouble, because the weather is not suited for their growth.

Remedies.—The “rot” usually appears about the first two weeks in August, and if the weather is favourable its spread is very rapid, for as soon as the thread-like structure which arises from the spore is developed, it immediately becomes spore-bearing. Hence the importance of examining the plants for the appearance of the brownish spots that indicate the presence of the fungus:—

1. As soon as discovered, dig the potatoes. Delay will allow it to spread to the stems, and thence to the tubers. If it reaches these and damp weather comes, “rot” will certainly appear.
2. After digging, the potatoes should be put in a cool, dry place, thus surrounding them with conditions unfavourable for the growth of the fungus, if any happens to be upon them.
3. Growing early varieties is worthy of consideration, so that they may mature before the season arrives when this parasite is likely to affect the crop.
4. All potato stalks, in affected lands, should be gathered and burned, so as to destroy the millions of spores which may be upon them.
5. Use none but good seed. If at all affected, reject them; and plant in well-drained land. If the potatoes to be used for seed have been taken from cellars where affected ones were kept, they are likely to have the microscopic spores on them and escape notice. It would be best to get seed from unaffected districts.

6. It is scarcely necessary to remark that it would be injudicious to plant potatoes in the same field the following year, after a visitation of the "rot," inasmuch as the ground may retain the germs of the disease.

7. Avoid planting upon heavy clay soil, but prefer a light and dry soil. This presents the fewest conditions suitable for the growth of the fungus.

8. Plant the varieties least affected.

The nature of our climate is not so favourable for the development of this injurious fungus as that of Britain; yet as we are sometimes visited by it, and although scarcely viewed as a scourge, it is well that we should remember its nature and habits, and always be ready to guard against failure if it appears. As last summer was favourable for its propagation, great care should be exercised in the selection of seed this spring.

HARDY SHRUBS.

Six years ago an Arboretum was established at the Ontario Agricultural College for the purpose of testing trees and shrubs on the college grounds. Upwards of 400 species have been planted, so that we are now in a position to give some results of our work in this line of investigation. The space for a bulletin being limited, I shall in this refer only to the shrubs which have done well, and reserve for a future occasion remarks upon those which have failed, and our success in tree planting. At the present time, when the beautifying of country homes is commanding the attention of farmers, our results in shrub culture may be of interest. However, it must be remembered that some varieties, which have failed with us, may be grown successfully in some parts of Ontario where the climate is less severe. Whatever is remarked in this bulletin refers to results on the college grounds only.

1. CONDITIONS SURROUNDING THE SHRUBS.

Location: Latitude north $43^{\circ} 38'$, height above sea level 1,100 feet, above Lake Ontario 858 feet.

Exposure: The lawn on which the shrubs are planted, slopes S.S.W., and is surrounded by a belt of evergreens, the north side being well protected.

Soil: Clay loam.

Meteorological: Mean annual temperature 42.2° , 1880-1886; mean summer temperature 57.1° , winter 27.3° ; highest temperature (1881) 98° , lowest (1884)— 35° ; average number of days rain fell per year 72, rainfall including snow 24.7 inches; prevailing winds, southwest 43 per cent., northwest 31 per cent.

2. MANAGEMENT.

The shrubs have been carefully planted in clumps, each containing several genera of the same family. In some cases they are cultivated around them for a distance of about two feet, in others the whole space between the shrubs is kept thoroughly worked and as free from weeds as possible.

On the approach of winter the tender varieties are protected by using coarse manure as a mulch above the roots, and covering the shrub with evergreen brush in the way best suited for protection. Any weeds which may appear from time to time between periods of cultivation after being hoed are left as a sort of mulch around the shrubs.

3. RESULTS.

The following have proved hardiest in our collection, and having withstood the comparatively severe climate of this locality, while many which have completely failed may be grown with success in most parts of Ontario.

Anacardiaceae (Sumach Family).

Rhus (Sumach).—This genus is represented by four species which seem hardy.

Berberidaceae (Barberry F.)

Berberis (Barberry).—Both species, common and purple, have done well. The latter is a very handsome shrub, but the family has a bad reputation for being a source of the rust we find on wheat.

Caprifoliaceae (Honeysuckle F.)

Lonicera (Honeysuckle).—Six species of this genus are hardy and flowering early, and are among the most attractive shrubs on the lawn.

Viburnum (Snowball).—Seven species, hardy. In some the berries give the shrubs a beautiful appearance.

Weigela.—This genus is not quite so hardy as the preceding, but its beautiful bell-like flowers are well worth some extra care.

Sambucus (Elder).—Two species do well.

Symphoricarpos (Snowberry).—More attractive for the beauty of its white berries than the small flower it bears.

Cornaceae (Dogwood F.)

Cornus (Dogwood).—Three hardy species thrive in this family. *C. stolonifera* is interesting on account of its reddish bark.

Leguminosae (Bean F.)

Caragana (Pea-tree).—This genus of Russian shrubs is represented by several hardy forms which are dwarf-like in appearance, but seem to be doing well. This spring some bore beautiful golden flowers.

Colutea (Bladder senna).—Attractive for its yellow flowers and peculiar bladder-like reddish pods.

Oleaceae (Olive F.)

Syringa (Lilacs).—Eight species, hardy.

Forsythia (Golden Bell) and *Ligustrum* (Privet).—Do well.

Chionanthus (White Fringe).—Has not been as thrifty with us as the preceding, but the shrub seems to have been injured by some other means than the climate.

Rosaceae (Rose F.)

Spiraea.—This genus is represented by ten hardy varieties that are among the most beautiful shrubs we have. Some flowering in spring, *S. chamaedrifolia*, *S. aurea*; others in July, *S. Billardi*, *S. callosa*.

Pyrus Japonica (Japan quince).—Not so hardy as some of the preceding.

Rosa.—In this genus the briars are thrifty.

Saxifragaceae (Saxifrage F.)

Philadelphus (Mock Orange).—Six varieties in this genus are very interesting for their hardiness and the beautiful white fragrant flowers with which some of them are covered in June.

Ribes (Flowering Currants).—Five varieties have done well, and in early spring beautify the lawn with their golden and crimson flowers.

Hydrangea-paniculata (Shrub Hydrangea).—This beautiful shrub, flowering in August, blooms at a time when few are in flower. It is not quite so hardy as the other representatives of this family.

4. CONCLUSIONS FROM OUR EXPERIENCE.

1. Where shrubs are planted in clumps they grow better by having all the land between them cultivated.

2. Shrubs should be thoroughly cultivated around them for a distance of about three feet, so as to keep the soil clean and loose.

3. In the selection of shrubs, their hardiness should be considered, otherwise their purchase is money thrown away. It often happens in a climate like ours that the most expensive varieties are the most tender, and not likely to succeed.

4. Shrubs which withstand the climate of Guelph may be termed very hardy and may be grown successfully in most parts of Ontario.

5. The following thirteen shrubs are the best adapted for ornamental purposes on account of their size, time of flowering and hardiness :

- (1) *Berberis purpurea* (Purple-leaved Barberry), 3 to 5 feet high, flowering May.
- (2) *Ribes aureum* (Golden Currant), 5 to 7 feet high, flowering May and June.
- (3) *Syringa Persica* (Persian Lilac), 4 to 6 feet high, flowering May and June.
- (4) *Lonicera Tartarica* (Tartarian Honeysuckle), 5 to 9 feet high, flowering May and June.
- (5) *Viburnum opulus* (Snowball), 5 to 9 feet high, flowering May and June.
- (6) *Spiræ chamaedrifolia* (Germander-leaved Spiræa), 3 to 5 feet high, flowering May and June.
- (7) *Weigela rosea* (Rose-colored Weigela), 3 to 6 feet high, flowering June.
- (8) *Philadelphus coronarius* (Mock Orange), 5 to 10 feet high, flowering June.
- (9) *Spiræa aurea* (Golden-leaved Spiræa), 5 to 7 feet high, flowering June.
- (10) *Symphoricarpus racemosus* (Snowberry), 3 to 5 feet high, flowering June.
- (11) *Colutea arborescens* (Bladder Senna), 4 to 6 feet high, flowering June.
- (12) *Spiræa sorbifolia* (Ash-leaved Spiræa), 4 to 7 feet high, flowering July.
- (13) *Spiræa Billardi* (Pink Spiræa), 4 to 6 feet high, flowering July and August.

GRAPES.

The College vineyard is situated in a field at the rear of the College. This location was chosen in 1881 as the best available at that time, and 440 vines were planted the same season, in lines twelve feet apart each way. In the following spring 210 vines were added, making a total of 650, and representing ninety-six varieties. Having had an experience of five years with this varied collection, we are enabled to give some results, which may prove both interesting and instructive to those who read them.

Our success may be a surprise and disappointment to some who can readily ripen grapes which fail to mature with us, but the results are what have been obtained at the College under conditions which are given, and when considered they become an important factor in accounting for failures among varieties that elsewhere in Ontario are prolific. The reader will therefore remember that these data have been collected from the College vineyard only.

1. *Conditions surrounding the Vines.*

Location—Latitude north 43°-38'; height above sea level, 1,100 feet; above Lake Ontario, 858 feet.

Exposure—High and airy position, with southern aspect, but unduly exposed to the west.

Soil—Clay loam, with a somewhat springy bottom, and in need of more draining.

Meteorological—Mean annual temperature for 1880-86, 42.2°; mean summer, 57.1°; mean winter, 27.3°; highest temperature (1881), 98°; lowest (1884), -35°; average number of days rain fell per year, 72; rainfall (including snow), 24.7 inches; prevailing winds—S.W., 43 per cent.; N.W., 31 per cent.

2. *Management.*

In the third year (1883) two canes were grown from each vine and carefully tied up throughout the growing season to stakes, these canes being intended for permanent limbs from which the young and bearing wood was to grow. This mode of training seemed the best adapted for this section of the Province, where it is necessary to lay down the vines and cover for winter protection.

The next spring, posts were put between the vines, and four rows of fence wire (No. 8) strung from post to post, the lowest wire eighteen inches from the ground, the top five feet, and the two remaining, twenty-one inches. This arrangement forms an excellent trellis for the vines.

The ground between the rows has been thoroughly cultivated, kept clear of weeds, and manured with farmyard manure. This year some night-soil was applied, but with no marked results.

About the end of October or beginning of November, the vines are pruned by cutting back the canes which bore the fruit to the main arms, and leaving between each a cane of the present year's growth to bear next year. They are then laid down and covered with three or four inches of earth. During the summer, pruning is also done by pinching the shoots bearing fruit back to the second joint beyond the fruit, and the young shoots, as soon as the wood is well formed, are kept back even with the top of the trellis by the same process.

The two main lines are trained in opposite directions and thus form the so-called laterals from which the bearing canes rise vertically, three or four on each lateral.

3. *Results.*

Waverly, Rogers' 5, Purity, Dempsey's 18 and 25, Croton, Centennial, Louisiana Concord, Chasselas, Triumphant, and Herbemont, have died and have not been replaced. Accident may have been as much the cause of failure as severity of climate.

Rogers' 31, Eldorado, Prentiss, Rochester, Black Eagle, Monroe, Beauty, Iona, Senasqua, Grein's Golden, Autuchon, and Telegraph, are weak in appearance. This may have resulted from some being transplanted to another part of the vineyard in the second year.

Jessica, Faith, Rogers' 30, Canada, Dempsey 4, Walter, Amber, Ouyahoga, Transparent, Amber Queen, Alvey, Lady, Isabella, Advance, Salem, Creveling, Delaware, Rogers' 2 and 39, Echland, New Haven, Worden, and Antionello, are medium vines.

Naomi, Wilding, Brant, Jefferson, Barry, Pearl, Duchess, Una, Lady Washington, Eva, Janesville, Maxatawney, Ives' Seedling, Elvira, Black Hawk, Cottage, Vergennes, Pocklington, Early Dawn, Eumelan, Gaertner, Missouri, Riesling, Merrimac, Herbert, Brighton, Lindley, Martha, Hartford, Champion, Agawam, Moore's Early, Wilder, Clinton, Massasoit, Concord, Rogers' 41, 28 and 33, Uhland, Mary Ann, Cornucopia, Othello, Venango, Noah, Dracut's Amber, Cynthiana, and Norton, are all vigorous vines.

The following notes made this fall at stated times will show the condition of these varieties when visited :

September 8th, Brant, Janesville, Champion, Moore, Early Dawn, coloring and ripe before the week ends ; Wilder commencing, Othello freely coloured, but unequally ; 14th, Lindley, Hartford, Wilder, Massasoit, just showing color, Telegraph, Ives' Seedling, Cottage, Israella, Eumelan, Barry and Concord, apparently later than the preceding ; 21st, Creveling and Concord about the same, and Cornucopia nearly so.

October 2nd, the best were cut, viz. : Lindley, Delaware, Moore, Salem, Massasoit, Wilder, Merrimac, Eumelan, Herbert, Concord ; 7th, Clinton, Brighton, Agawam, and Martha, ripe.

4. *Conclusions.*

1. Grape vines in this locality must be well sheltered with warm exposure, and grown in a warm, well-drained soil, or little fruit will be secured.

2. Our vines are vigorous and show much fruit, but it ripens very irregularly and late in the season.

3. The Concord, known as the grape for the million, scarcely ripens with us before well into October, and even then but irregularly.

4. A grape which does not ripen earlier than the Concord is of little use here.

5. Our earliest seems to be Moore's Early, Champion, Lady, and Massasoit,

6. In a district at all suited for grapes, we would recommend the following for flavour, hardiness, and yield :

Black :—Wilder, Worden, Moore, Concord, Barry.

Red :—Delaware, Brighton, Lindley, Agawam.

White :—Niagara, Lady, Martha.

SEED TESTING.

1. *Object.*

For some years past, especially in England, farmers have had their attention directed to the condition of the seed sown on the farm, and in many cases have found that seed is far from being pure, and suited for the purpose intended. It fails in being true to its kind, other seeds are mixed with it, especially among grass seed. In some samples many seeds of weeds are found and in not a few cases there is a lack of germinating power in the seed. These facts have led to the practice, among prominent seedsmen, of guaranteeing the *purity, cleanness* and *vitality* of seeds sold, and it has been observed, that during the past few years a marked improvement has resulted in the condition of seed sold. Leading American and Canadian seedsmen have also adopted the idea of testing their seeds before recommending them to the public, and find that the expense is well repaid by securing the confidence of their customers. With a view to calling the attention of our Canadian farmers to this question of testing seeds, this bulletin is written.

While all the failures in germination cannot be attributed entirely to 'poor seed, yet there is no doubt that much seed is sown which has very little vitality, and in some cases, especially grass, the seed is far from being true to its kind, there being several varieties where one only was expected.

The seeds of weeds too, unfortunately, are not uncommon in seed grain, and thus at a period in Canadian farming, when there is so much interchange of grain for seeding purposes, as the present, it is not a matter of surprise, if care is not taken, that we find weeds on the increase both in regard to number and variety. Having made some tests in the germinating of seeds at the College during the past year, some of the results are now published with a hope that they may prove interesting and instructive to the readers of this bulletin.

2. *Methods.*

There are several methods for testing the vitality of seeds. Some are very simple and may be performed by any one interested.

1. Place 100 seeds between sheets of blotting paper laid on sand, and keep the paper wet in a place where the temperature is about 78°–85° F. The number of seeds germinating will indicate the percentage good.

2. Place the seeds on a piece of flannel in a saucer with sufficient water to moisten it thoroughly. After scattering the seeds (100) on the flannel, put a piece of damp blotting paper over the whole and place in a warm room. Keep it continually damp and in a short time the seeds will germinate. The number sprouting will be the percentage of good seeds.

3. The following method is much more complicated than the preceding and can only be adopted where the subject is made a study. This is the apparatus used at the College. It consists of a hemispherical copper boiler one foot in diameter, fastened to the bottom of a galvanized iron pan, two feet wide, four feet long and five inches deep. The water passes from the copper boiler into the pan through four small holes, and is made to circulate over every part of it by guides; these are three-fourths of an inch high. Another bottom resting on the top of these is firmly soldered around the edges; at one corner a tube passes through the bottom for the purpose of filling the boiler and under-pan with

water. After coming from the copper vessel the heated water runs back and forth several times in the lower pan, and is finally conducted by a return tube back to the copper boiler, entering near the bottom. Some sand (about 2 inches deep) is put in the upper part of the pan, and on this the boxes, etc., containing the seeds to be tested rest. This tin box and boiler is set in something like an office desk about four feet high, standing on four legs. This desk-like structure has a hinged glazed top. Heat is produced by a small coal oil stove placed below. This form of apparatus is well adapted for testing many samples at the same time and gives very satisfactory results.

4. For examining seeds as to purity, scatter them on a piece of black card-board and the foreign grains are readily observed. If a good collection of seeds true to their kind is kept for comparison the impurities can be easily identified.

3. Results of Some Tests in the Germinator.

(100 seeds of each variety.)

TABLE I.—Temp. 78° 85°.

	Per cent. at end of 3—5—7—12 days.
Clover, Red	48, 68, 72, 79
“ White	12, 36, 80, 96
“ Alsike	18, 52, 67, 70
Lucerne	36, 75, 81, 86
Blue Grass	5, 10
Red Top	8, 10, 12, 22
Timothy	3, 19, 58, 70
Perennial Rye	5, 23, 55, 63
Orchard	4, 15, 20, 38
Hard Fescue	2, 2, 16, 32
Sheep “	4, 12
Meadow “	2, 60, 72, 96
Tall “	4, 18, 60, 80
Meadow Foxtail	2, 6, 16, 20
Yellow Oats	8, 18, 26

TABLE II.—Temp. 70°.

	Per cent. at end of 5—7—12—15 days.
Sweet Vernal	1, 5, 14
Italian Rye	15, 20, 21
Crested Dogtail	4, 18, 26
Wood Meadow Grass	3, 6, 6
Fine-leaved Fescue	3, 3
Rough Stalked Meadow	1, 2
Timothy	19, 52, 61, 70
Perennial Rye	6, 37, 47
Orchard	3, 8, 10
Hard Fescue	1, 18, 34
Meadow “	3, 23, 65, 85
Tall “	2, 13, 22
Meadow Foxtail	2, 16, 23
Yellow Oat	2
Thistles	10, 48, 54

TABLE III.—Seeds 10 years old taken from Museum.

	Per cent. at end of 12 days.
Pease, 9 samples	0
Beans, 10 “	0
“ 2 “	36
Turnips	32
Mangolds	72
Rye	0
Timothy, 8 samples	2
Millet	54
Hungarian Grass	27
Clover	6
Tares	90
Buckwheat, 9 samples average	13
Oats, 1 sample	0
Barley, “	0
Rusted Wheat, '86	12

TABLE IV.—Frosted Wheat from Manitoba.

No.	Per cent. at end of 3—4—5—7—8 days.
1	16, 26, 32, 46, 48
2	16, 24, 48, 56, 58
3	32, 56, 58, 68, 72
4	8, 14, 24, 30, 30
5	26, 42, 50, 68, 70
6	2, 6, 16, 38, 52
7	10, 24, 42, 56, 58
8	38, 46, 58, 66, 66
9	10, 16, 28, 42, 52
10	0, 10, 24, 35, 42
11	16, 26, 44, 52, 52
12	24, 38, 54, 56, 60

Inferences.

1. Age has a marked effect on the vitality of certain seeds.
2. That many seeds have lost much of their vitality from improper curing or other causes.
3. Frozen wheat is not reliable for seed, even though germinating a fair per cent., its growth in the field is of a more or less weakly nature. The seeds of Table IV. were grown in the field as well as in the germinator.
4. All seeds should be tested for vitality and purity.
5. Seeds are more likely to be good from seedsmen than commission agents.

6. A small percentage of impure seeds means very many in a bushel.
7. Thistles can be grown from seed. A fact contradicted by some, who maintain that the plant is propagated from the root only, and all seed imperfect. This view was held by some at Farmers' Institutes last winter.
8. Grass seed is very liable to impurities; some kinds containing much chaff.
9. Temperature has considerable effect in hastening germination.

5. LECTURES.

Concerning this department of work little requires to be said by me. An examination of your report on class-room work, will give the reader a clear conception of the work performed by the different professors in the various departments.

But I wish here to remark that much attention has been given to make the study of science popular and practical. Excursions have been made from time to time with the students for the purpose of studying Botany and Geology in the field. The Grand Trunk Railway authorities have kindly reduced the rates to our students on scientific trips, so that they can visit places of geological interest some miles from the college at comparatively little expense.

They have availed themselves of this kindness and have evinced a greater interest in the practical study of science than in former years. The late additions to the museum and excellent diagrams drawn by Messrs. Ritchie and Gilbert (students), have also aided much in the teaching of natural science. We are now in a position to make the subject interesting, attractive and instructive.

TREES AND SHRUBS PLANTED ON THE ONTARIO AGRICULTURAL COLLEGE GROUNDS.

Those marked "dead," in some cases came in bad condition for planting; some were destroyed by accident, while others were too tender to withstand the severity of the climate. Those marked "fair" are growing but not vigorously, while those referred to as "tender," live but are protected during the winter. Specific characters are not referred to in the list. Information regarding any particular shrub or tree, can be obtained from works on the subject, or by consulting either the Professor of Natural History or the practical Horticulturist at the College.

Anacardiaceæ. Sumach or Cashew Family.

Deciduous Shrubs:

- Rhus aromatica.* Fragrant sumach. Good.
- R. copallina.* Copal sumach. "
- R. Cotinus.* Smoke tree. Mist shrub. Fair.
- R. glabra.* Smooth sumach. Good.
- R. Osbecki.* Chinese sumach. Dead.
- R. trilobata.* Three-lobed sumach. Dead.
- R. typhina.* Staghorn sumach. Good.

The Sumachs are large shrubs, generally of peculiar growth. Nearly all of them have leaves changing to a scarlet colour in autumn.

Anonaceæ. Custard-Apple Family.

Deciduous Trees:

- Anona triloba.* Pawpaw or custard-apple. Dead.

Aquifoliaceæ. Holly Family.

- Ilex opaca.* American holly. Dead.
I. verticillata. Black alder. "
I. aquifolia. English holly. "

Araliaceæ. Ginseng Family.

Deciduous Shrubs :

- Aralia spinosa.* Hercules club. Fair.
A. Japonica. Dead.

Berberidaceæ. Barberry Family.

Deciduous Shrubs :

- Berberis Vulgaris.* European barberry. Good.
B. V. purpurea. Purple-leaved barberry. Good.
B. Fremonti. Dead.
B. Darwini. Dead.
B. Thunbergi. Fair.
Mahonia aquifolia. Holly-leaved Mahonia. Fair. An evergreen.

Most of these shrubs are prized for their flowers and dark red fruit, which becomes ornamental in July and continues till late in the season. The foliage is small and attractive.

Betulaceæ. Birch Family.

Deciduous Trees :

- Alnus glutinosa.* European alder. Good.
A. g. laciniata. Cut-leaved alder. Good.
A. maritima. Seaside alder. Good.
Betula alba. European white birch. Good.
B. a. purpurea. Purple-leaved birch. Dead.
B. a. laciniata. Cut-leaved birch. Good.
B. a. pendula. Weeping birch. Good.
B. populifolia. Poplar birch. Good.
B. lenta. Sweet or black birch. Good.
B. lutea. Yellow or gray birch. Good.
B. papyracea. Paper or canoe birch. Good.
B. Rubra. Red birch. Dead.

The birches are interesting trees, possessing beautiful foliage and bark of different hues.

Bignoniaceæ. Bignonia Family.

Deciduous Trees :

- Catalpa bignonioides.* Catalpa. Tender.
C. p. nana. Dwarf catalpa. Tender.
C. kœmpferi. Japan catalpa. Tender.
C. Bungei. Tender.
C. speciosa. Western catalpa. Good.

Calycanthaceæ. Calycanthus Family.

Deciduous Shrubs :

- Calycanthus floridus.* Sweet shrub. Poor.
Chimonanthus præcox. Dead.

Caprifoliaceae. Honeysuckle Family.

Deciduous Shrubs :

- Weigela amabilis.* Light rose weigela. Fair.
- W. hortensis nivea.* White weigela. Fair.
- W. Desboisii.* Deep rose weigela. Fair.
- W. Groenewegenii.* Dark rose weigela. Fair.
- W. rosea.* Rose weigela. Fair.
- W. variegata.* Variegated weigela. Fair.
- W. Isolone.* Fair.
- W. purpurea.* Fair.
- W. Van Houtti.* Fair.

• The Weigelas are beautiful shrubs, bear handsome flowers of several colors ; the bushes from three to five feet high. They are somewhat tender, but, with protection, do comparatively well.

- Lonicera grandiflora.* Bush honeysuckle. Good.
- L. Orientalis.* Bush honeysuckle. Good.
- L. Philomela.* Bush honeysuckle. Good.
- L. Sibirica.* Bush honeysuckle. Good.
- L. Tartarica.* Tartarian honeysuckle. Good.
- L. Xylosteum.* Fly honeysuckle. Good.

The Honeysuckles form an attractive group of shrubs, flowering early in spring, and afterwards bear red berries, which hang on until fall. Bush, five to eight feet high.

- Sambucus variegata.* Variegated-leaved elder. Good.
- S. racemosa.* Red berried elder. Good.
- Symphoricarpus racemosus.* White-fruited snowberry. Good.
- S. vulgaris.* Coral berry, red-fruited snowberry. Good.
- S. v. variegata.* Variegated-leaved snowberry. Good.
- Viburnum acerifolium.* Maple-leaved viburnum. Good.
- V. lantanoides.* Hobble bush. Good.
- V. lantana.* Way-faring tree. Good.
- V. lentago.* Sweet viburnum. Good.
- V. nudum.* Good.
- V. opulus.* Snowball. Good.
- V. oxycoccus.* Bush cranberry. Good.
- V. plicatum.* Japan snowball. Good.
- V. prunifolium.* Sheep berry. Good.

The Viburnums bear attractive flowers, followed by beautiful red berries, which give the bushes a striking appearance in autumn.

Celastraceae. Staff Tree Family.

Deciduous shrubs :

- Euonymus Americanus.* Strawberry bush. Good.
- E. Europæus.* European burning bush. Dead.
- E. E. Variegata.* Variegated bush. Tender.

Coniferae. Pine Family.

- Chiefly Evergreens, trees and shrubs. Good.
- Abies alba.* White spruce. Good.
- A. Canadensis.* Hemlock spruce. Good.
- A. Douglasii.* Douglas spruce. Good.

- A. Engelmannii. Engelmann's spruce. Good.
 A. Excelsa. Norway spruce. Good.
 A. Menziesii. Menzies' spruce. Good.
 A. orientalis. Oriental. Fair.
 Biota orientalis. Chinese arbor vitæ. Good.
 B. O. Aurea. Golden arbor vitæ. Tender.
 Juniperus Chinensis. Chinese juniper. Tender.
 J. communis. Common juniper. Good.
 J. prostrata. Trailing juniper. Good.
 J. Sabina. Savin juniper. Good.
 J. Suecica. Swedish juniper. Tender.
 J. Virginiana. Red cedar. Fair.
 J. occidentalis. Rocky Mountain juniper. Good.
 Libocedrus decurrens. Decurrent-leaved arbor vitæ. Dead.
 Pinus Austriaca. Austrian pine. Good.
 P. Benthamiana. Good.
 P. Banksiana. Scrub pine. Good.
 P. Cembra. Swiss pine. Good.
 P. Jeffreyi. Dead.
 P. Laricio. Corsican pine. Good.
 P. Mughus. Mountain pine. Good.
 P. mitis. Yellow pine. Dead.
 P. pinaster. Sea pine. Dead.
 P. ponderosa. Heavy pine. Dead.
 P. pungens. Table mountain pine. Good.
 P. rigida. Pitch pine. Good.
 P. strobus. White pine. Good.
 P. S. pumila. Dwarf white. Good.
 P. sylvestris. Scotch pine. Good.
 P. inops. Jersey pine. Dead.
 P. Lambertiana. Giant sugar pine. Good.
 Podocarpus Japonicus. Japan yew. Tender.
 Retinospora ericoides. Heart-leaved Japan cypress. Tender.
 R. filifera. Thready Japan cypress. Tender.
 R. leptoclada. Tender.
 R. obtusa. Obtuse-leaved Japan cypress. Tender.
 R. plumosa. Plum-like Japan cypress. Tender.
 R. squarrosa. Tender.
 R. pisifera. Tender.
 Salisburia adiantifolia. Maiden hair tree. Tender.
 Taxus Canadensis. American yew. Tender.
 Taxodium distichum. Bald cypress. Tender.
 T. d. pendulum. Weeping bald cypress. Tender.
 T. Chinensis. Tender.
 Glyptostrobus pendula. Chinese cypress.
 Thuja gigantea. Giant arbor vitæ. Good.
 T. occidentalis. American arbor vitæ. Good.
 T. o. aurea. George Peabody arbor vitæ. Tender.
 T. o. ericoides. Heath-leaved arbor vitæ. Fair.
 T. o. glauca. Tender.
 T. o. globosa. Globe arbor vitæ. Fair.
 T. o. Hoveyi. Hovey's arbor vitæ. Tender.
 T. o. Meehani. Meehan's arbor vitæ. Tender.
 T. o. pyramidalis. Upright arbor vitæ. Good.
 T. o. Siberica. Siberian arbor vitæ. Good.
 T. o. spiralis. Fair.
 T. o. Tom thumb. Dwarf arbor vitæ. Fair.

Cornaceæ. Dogwood Family.

Deciduous Trees :

- Cornus florida.* White flowering dogwood. Tender.
Nyssa multiflora. Northern sour gum. Dead.

Deciduous Shrubs :

- Cornus alba.* Red-twigged dogwood. Tender.
C. alternifolia. Blue dogwood. Fair.
C. mascula. Cornelian Cherry. Fair.
C. sanguinea. English dogwood. Good.
C. paniculata. White-fruited dogwood. Fair.
C. sericea. Silky dogwood. Tender.
C. stricta. Stiff cornel dogwood. Good.
C. Siberica. Red Siberian dogwood. Good.

Cupuliferæ. Oak Family.

Deciduous Trees :

- Castanea Americana.* Sweet chestnut. Fair.
C. vesca. Spanish chestnut. Dead.
Fagus ferruginea. American beech. Good.
F. sylvatica. English beech. Dead.
F. s. incisa. Out-leaved beech. Dead.
F. s. asplenifolia. Fern-leaved beech. Dead.
F. s. purpurea. Purple-leaved beech. Tender.
Qstrya Virginica. Iron wood. Good.
Quercus alba. White oak. Good.
Q. aquatica. Water oak. Dead.
Q. bicolor. Swamp white oak. Dead.
Q. Catesbæi. Turkey oak. Dead.
Q. cerris. Burgundy oak. Dead.
Q. cinerea. Upland willow oak. Dead.
Q. coccinea. Scarlet oak. Dead.
Q. falcata. Spanish oak. Dead.
Q. imbricaria. Northern laurel oak. Dead.
Q. lyrata. Lyre-leaved oak. Dead.
Q. macrocarpa. Mossy cup or burr oak. Good.
Q. nigra. Black Jack oak. Good.
Q. obtusiloba. Post oak. Dead.
Q. palustris. Pin oak. Dead.
Q. prinoides. Dwarf chestnut oak. Dead.
Q. rubra. Red oak. Good.
Q. robur fastigiata. Dead.
Q. r. sessiflora. Dead.
Q. tinctoria. Black oak. Dead.
Q. Bannisteri. Scrub oak. Dead.

Deciduous Shrubs :

- Carpinus Americana.* American hornbeam. Dead.
C. Betulus. European hornbeam. Dead.
Corylus Avellana. Hazelnut. Good.
C. purpurea. Purple hazelnut. Good.

The Oaks of this family which died were injured by being transplanted twice, owing to a re-arrangement of the trees upon the lawn.

Elæagnaceæ. Oleaster Family.

Deciduous Shrubs :

- Elæagnus longipes.* Japanese oleaster. Dead.
- E. parvifolia.* Silver thorn. Tender.
- E. flava.* Tender.
- E. argentea.* Silver berry. Fair.
- E. dulcis.* Dead.

Ericaceæ. Heath Family.

Deciduous Shrubs :

- Andromeda Mariana,* Stagger bush. Dead.
- A. racemosa.* Dead.
- A. calyculata.* Dead.
- A. arborea.* Sorrel tree. Deciduous tree. Dead.
- Azalea Viscosa.* Clammy azalea. Dead.
- Olethra alnifolia.* Sweet pepper bush. Fair.
- Erica carnea.* Fair.
- Vaccinium corymbosum.* Blueberry. Dead.
- V. stamineum.* Deerberry. Good.

Evergreen Shrubs :

- Calluna vulgaris.* Scotch heath. Fair.
- Kalmia augustifolia.* Narrow-leaved laurel. Dead.
- K. latifolia.* Broad-leaved laurel. Dead.

Euphorbiaceæ. Spurge Family.

- Buxus sempervirens.* Common box. Evergreen box. Tender.
- B. s. Handsworthi.* Handsworth's box. Evergreen. Tender.
- Euphorbia corallata.* Tender.

Hamamelaceæ. Witch-hazel Family.

Deciduous shrubs :

- Fothergilla alnifolia.* Good.
- Hamamelis Virginica.* Witch-hazel. Good.

Deciduous Tree :

- Liquidambar styraciflua.* Sweet gum. Tender.

Hypericaceæ: Saint John's Wort Family.

Deciduous Shrubs :

- Hypericum ascyron.* Siberian, St. John's wort. Dead.
- H. patulum.* Japan, St. John's wort. Dead.
- H. prolificum.* American, St. John's wort. Fair.
- H. Kalmianum.* Shrubby, St. John's wort. Dead.

Juglandaceæ. Walnut and Hickory Family.

Deciduous Trees :

- Carya alba.* Shellbark hickory. Good.
- C. amara.* Swamp hickory. Good.
- C. olivæformis.* Pecan nut hickory. Dead.
- O. porcina.* Pignut hickory. Dead.
- C. sulcata.* Large fruited hickory. Dead.
- C. tomentosa.* White hickory. Dead.

O. Microcarpa. Small fruited hickory. Dead.
O. aquatica. Water hickory. Dead.
Juglans nigra. Black walnut. Good.
J. cinerea. Butternut. Good.

Lauraceæ. Laurel Family.

Sassafras officinale. Sassafras. Dead.
Laurus Benzoin. Spice bush shrub. Dead.

Leguminosæ. Bean Family.

Deciduous Trees :

Acacia julibrissin. Sensitive tree. Dead.
Cercis Canadensis. American Judas tree. Fair.
O. Japonica. Japan Judas tree. Fair.
C. siliquastrum. European Judas tree. Dead.
Cytisus albus. White broom. Dead.
Gleditschia triacanthos. Honey locust. Good.
G. sinensis. Chinese honey locust. Good.
G. horrida. Fair.
Gymnocladus Canadensis. Kentucky coffee tree. Good.
Robinia hispida. Rose acacia. Good.
R. h. grandiflora. Dead.
Sophora Japonica. Japan Sophora. Dead.
Virgilia lutea. Yellow wood. Fair.

Deciduous Shrubs :

Amorpha canescens. Lead plant or indigo shrub. Fair.
A. fruticosa. False indigo. Fair.
Caragana arborescens. Siberian Pea. Good.
Colutea arborescens. Bladder senna. Good.
Indigo dosua. Dead.
Lespedza bicolor. Dead.
Genista scoporinus. Scotch broom. Dead.

Magnoliaceæ. Magnolia Family.

Deciduous Trees :

Liriodendron tulipifera. Tulip tree. Dead.
L. integrifolia. Entire-leaved tulip tree. Dead.
Magnolia acuminata. Cucumber magnolia. Tender.
M. glauca. Sweet bay. Dead.
M. Soulangeana. Dead.
Cercidiphyllum Japonicum. Dead.

Malvaceæ. Mallow Family.

Deciduous Shrubs :

Hibiscus Syriacus. Rose of Sharon. Dead.
H. s. alba. White althæa. Dead.
H. s. purpurea. Purple althæa. Dead.
H. s. variegata. Variegated althæa. Dead.
H. s. carnea. Red althæa. Dead.

Myricaceæ. Sweet Gale Family.

Deciduous Shrubs :

- Comptonia asplenifolia.* Sweet fern. Dead.
Myrica cerifera. Wax myrtle. Dead.

Oleaceæ. Olive Family.

Deciduous Trees :

- Fraxinus Americana.* White ash. Good.
F. A. Bosci. Bosc's ash. Dead.
F. A. ancubæfolia. Aucuba-leaved ash. Fair.
F. A. spectabilis. Dead.
F. A. juglandifolia. Walnut-leaved ash. Fair.
F. excelsior. European ash. Good.
F. ex. heterophylla. Cut-leaved ash. Dead.
F. ex. angustifolia. Willow-leaved ash. Fair.
F. ex. jaspidea. Striped-barked ash. Dead.
F. ex. pendula. Weeping ash. Dead.
F. Americana lutea. Dead.
F. ornus. Flowering ash. Dead.
F. pubescens. Red ash. Dead.
F. platycarpa. Water ash. Fair.
F. quadrangulata. Blue ash. Fair.
F. sambucifolia. Black ash. Good.
F. Theophrasti. Dead.
F. viridis. Green ash. Dead.
Chionanthus Virginica. White fringe. Fair.
Forsythia viridissima. Golden bell. Fair.
F. suspensa. Golden bell. Fair.
Ligustrum vulgare. Privet. Good.
L. luxifolium. Box-leaved privet. Good.
L. Japonicum. Japan privet. Fair.
L. variegatum. Variegated privet. Dead.
L. myrtifolium. Myrtle-leaved privet. Fair.
L. ovalifolium. Californian privet. Fair.
L. Stauntoni. Staunton's privet. Fair.
Syringa Josikea. Josikea's lilac. Good.
S. Persica. Persian lilac. Good.
S. vulgaris. Purple lilac. Good.
S. v. alba. White lilac. Good.
S. v. Ambroise Verschaffelt. Good.
S. v. Charles X. Reddish purple lilac. Good.
S. v. Dr. Stockhardt. White. Good.
S. v. Gloire de Moulins. Good.
S. v. ligustrina. Good.
S. v. oblata. Good.
S. v. Princess Maria. Good.
S. v. rubra insignis. Good.
S. vallettiana. Good.
S. purpurea florepleno. Good.
S. racemosa. Dead.
S. variegata. Dead.

Platanaceæ. Plane Tree Family.

Deciduous Trees :

- Platanus orientalis.* Oriental plane. Good.
P. occidentalis. Button wood. Good.

Rhamnaceæ. Buckthorn Family.

Deciduous Shrubs :

- Ceanothus Americana*. Red Root, New Jersey Tea. Dead.
Rhamnus catharticus. Common buckthorn. Good.
R. Carolinianus. Carolina buckthorn. Good.
R. frangulus. Good.

Rosaceæ. Rose Family.

Deciduous Trees :

- Amelanchier botryapium*. June berry. Good.
A. nana. Dwarf variety. Fair.
Cerasus Padus. European bird cherry. Dead.
Prunus Americana. Wild plum. Good.
P. Virginiana. Choke cherry. Good.
P. chicensis. Chickasaw wild plum. Dead.
P. umbellata. Southern wild plum. Fair.
P. spinosa flore pleno. Double-flowering sloe. Fair.
Pyrus aucuparia. European mountain ash. Good.
P. coronaria. Sweet-scented crab. Good.
P. hybrida. Hybrid mountain ash. Good.
P. malus spectabilis. Chinese double-flowering apple. Dead.
P. Americana. American mountain ash.
P. A. nana. Fair.

Deciduous Shrubs :

- Amygdalus nana*. Flowering almond. Tender.
A. n. alba. White flowering almond. Tender.
Cerasus pumila. Dwarf Cherry. Tender.
C. p. pendula. Weeping dwarf cherry. Tender.
C. carnea. Good.
C. flore pleno. Fair.
Cotoneaster acuminata. Tender.
C. buxifolia. Box-leaved cotoneaster. Tender.
C. baccilaria. Tender.
C. floribunda. Tender.
C. frigida. Tender.
C. Simmondsi. Tender.
C. obtusa. Tender.
C. nummularia. Tender.

The *Cotoneasters* are attractive shrubs with small leaves and bright-coloured berries in autumn, but are rather tender for this part of Ontario.

- Crataegus Oxycantha*. English hawthorn. Fair.
C. o. variegata. Variegated-leaved hawthorn. Dead.
C. o. apiifolia. Parsley-leaved hawthorn. Fair.
C. o. Douglassii. Fair.
C. o. rubra splendens. Dark red. Fair.
C. o. Crus-galli. Cockspur hawthorn. Fair.
C. cordata. Washington hawthorn. Fair.
C. coccinea. American white thorn. Fair.
C. flava. Southern hawthorn. Dead.
Kerria Japonica. Tender.
K. flavescens. Tender.
K. Kalmiana. Dead.

- Potentilla fruticosa*. Shrubby cinquefoil. Fair.
P. veria. Dead.
Prunus triloba. Double-flowering plum. Dead.
P. glabra. Fair.
Pyrus (*Oydonia*) *Japonica*. Japan quince. Fair.
P. floribunda. Japan choke berry. Dead.
P. Jap. cardinalis. Crimson Japan quince. Fair.
P. J. semipleno. Double-flowering Japan quince. Dead.
P. J. variegata. Variegated Japan quince. Fair.

The large striking flowers of the Japan quince appearing in early spring make the shrub attractive and popular.

- Rosa blanda*. Early wild rose. Good.
R. rubiginosa. Sweet brier. Good.
R. rugosa. Good.
R. lutea. Dead.
R. florepleno. Good.
Spiraea Billardi. Good.
S. callosa. Good.
S. c. alba. Good.
S. carpinæfolia. Good.
S. chamædrifolia. Good.
S. Hookeri. Fair.
S. opulifolia. Good.
S. o. aurea. Good.
S. paniculata. Fair.
S. prunifolia. Fair.
S. rotundifolia. Fair.
S. Reevesii. Tender.
S. salicifolia. Good.
S. sorbifolia. Good.
S. Regeliana. Dead.
S. Thunbergii. Fair.
S. vaccinaefolia. Fair.
S. ulmifolia. Good.
S. crenata. Fair.

Spiraeas are among the most beautiful of shrubs, flowering at all seasons and differing in foliage, flower and habit of growth.

Rubiaceæ. Madder Family.

- Cephalanthus occidentalis*. Button-bush. Dead.

Rutaceæ. Rue Family.

Deciduous Trees :

- Zanthoxylon fraxineum*. Prickly ash. Dead.
Ptelea trifoliata. Hop tree. Fair.

Salicaceæ. Willow Family.

Deciduous Trees :

- Populus alba*. White poplar. Good.
P. angulata. Angled cottonwood. Good.

- P. angustifolia.* Narrow-leaved poplar. Good.
P. balsamifera. Balsam poplar. Good
P. crispa. Curled-leaved poplar. Good.
P. Eugenie. Dead.
P. grandidentata. Large-leaved aspen. Good.
P. monilifera. Cottonwood. Fair.
P. rotundifolia. Japan poplar. Fair.
P. Van Gaerti. Dead.
Salix alba. White willow. Good.
S. annularis. Curled or ring willow. Good.
S. Babylonica. Weeping willow. Good.
S. B. Salamoni. Dead.
S. Japonica. Japan willow. Dead.
S. caprea. Goat willow. Fair.
S. candida. Silvery willow. Fair.
S. discolor. Glaucous willow. Good.
S. Forbyana. Fair.
S. myricoides. Fair.
S. pentandra. Shining willow. Dead.
S. purpurea. Fair.
S. Russelliana. Good.
S. rosmarinifolia. Rosemary-leaved willow. Good.
S. Villarsiana. Dead.
S. Sieboldiana. Dead.
S. vitellina. Golden willow. Good.

Sapindaceæ. Soapberry Family.

Deciduous Trees :

- Acer campestre.* English maple. Good.
A. nances. Good.
A. dasycarpum. Silver maple. Good.
A. d. Weiri. Weir's cut-leaved maple. Good.
A. laetum. Colchican maple. Good.
A. macrophyllum. Oregon maple. Good.
A. platanoides. Norway maple. Good.
A. p. Reitbachi. Reitbach's maple. Fair.
A. p. Schweidleri. Schweidler's maple. Good.
A. p. laciniatum. Eagle's claw maple. Good.
A. p. dissectum. Cut-leaved Norway maple. Good.
A. saccharinum. Sugar maple. Good.
A. pseudo-platanus. Sycamore maple. Good.
A. p. purpureum. Purple-leaved sycamore maple. Good.
A. Tartaricum. Tartarian maple. Good.
A. Tauricum. Fair.
A. striatum. Stripped maple. Good.
Aesculus hippocastanum. Horse-chestnut. Fair.
A. glabra. Ohio or smooth horse-chestnut. Fair.
A. flava. Yellow horse-chestnut. Fair.
Pavia macrostachya. Dwarf white horse-chestnut. Fair.
Negundo fraxinæfolium. Ash-leaved maple. Good.
N. Californicum. California ash-leaved maple. Good.
Staphylea Bumalda. Japan bladder nut. Good.
S. trifolia. American bladder nut. Good.
Kœlreuteria paniculata. Dead.

Scrophulariaceæ. Figwort Family.

Paulownia imperialis. Empress tree. Dead.

Simarubaceæ. Quassia Family.

Ailantus glandulosa. Tree of Heaven. Dead.

A. Chinensis. Dead.

Styracaceæ. Storax Family.

Halesia tetraptera. Snowdrop shrub. Dead.

H. Meehani. Dead.

Saxifragaceæ. Saxifrage Family.

Deciduous Shrubs :

Deutzia crenata. Fair.

D. c. floreplena. Fair.

D. Pride of Rochester. Fair.

D. fortunei. Fair.

D. gracilis. Fair.

D. scabra. Fair.

Hydrangea paniculata. Good.

H. quercifolia. Oak-leaved. Dead.

Itea Virginica. Dead.

Philadelphus coronarius. Mock orange. Good.

P. Gordianus. Good.

P. grandiflorus. Good.

P. Columbianus. Good.

P. odoratissimus. Good.

P. tomentosus. Good.

P. Zeyheri.

Ribes aureum. Yellow-flowering currant. Good.

R. aureum Utah. Yellow-fruited currant. Good.

R. floridum. Wild black currant. Good.

R. Gordianum. Fair.

R. sanguineum. Red-flowered currant. Tender.

R. nigrum. Fair.

R. luteum. Good.

The shrubs of this family are very attractive, varying in foliage, flower and nature of the shrubs. They flower in early spring.

Tamariscineæ. Tamarix Family.

Deciduous Trees :

Tamarix Algerica. Tender.

T. tetandra. Tender.

T. Africana. Tender.

T. Chinensis. Tender.

T. Narbonne. Tender.

Tiliaceæ. Linden Family.

Deciduous Trees :

T. Americana. Basswood. Good.

T. Europea. European linden. Good.

T. Eu. laciniata. Cut-leaved linden. Good.

T. heterophylla. White linden. Good.

Urticaceæ. Nettle Family.

Deciduous Trees :

Celtis occidentalis. Nettle tree. Dead.
C. pumila. Dwarf nettle tree. Dead.
C. Australis. Dead.
Maclura aurantica. Osage orange. Tender.
M. a. variegata. Variegated orange. Tender.
M. a. aurea. Golden-leaved orange. Tender.
Morus rubra. Red mulberry. Fair.
M. Downingii. Downing's mulberry. Fair.
Ulmus Americana. American White elm. Good.
U. campestris. English elm. Good
U. c. adiantifolia. Dead.
U. c. monumentalis fastigiata. Dead.
U. c. montana. Scotch elm. Good.
U. c. pendula. Weeping elm. Dead.
U. c. purpurea. Purple-leaved elm. Dead.

Verbenaceæ. Vervain Family.

Deciduous shrubs :

Callicarpa purpurea. Dead.
Vitex agnus-castus. Chaste shrub. Dead.

The following summary shows the orders, number of genera, species and varieties represented in the collection.

40 orders, 121 genera, of which 345 species are living, and 132 dead.

Orders.	Genera.	Species and varieties living.	Species and varieties dead.
Anacardiaceæ	1	5	2
Anonaceæ	1	0	1
Aquifoliaceæ	1	0	3
Araliaceæ	1	1	1
Berberidaceæ	2	4	2
Betulaceæ	2	10	2
Bignoniaceæ	1	5	0
Calycanthaceæ	2	1	1
Caprifoliaceæ	5	29	0
Celastraceæ	1	2	1
Coniferae	12	55	5
Cornaceæ	3	9	1
Cupuliferae	6	10	22
Elaeagnaceæ	1	3	2
Ericaceæ	7	4	8
Euphorbiaceæ	2	3	0
Hamamelaceæ	3	3	0
Hypericaceæ	1	1	3
Juglandaceæ	2	4	6
Lauraceæ	2	0	2
Leguminosæ	14	12	8
Magnoliaceæ	3	1	5
Malvaceæ	1	0	5
Myrtaceæ	2	0	2

Orders.	Genera.	Species and varieties living.	Species and varieties dead.
Oleaceæ	5	31	13
Platanaceæ	1	2	0
Rhamnaceæ	2	3	1
Rosaceæ	11	61	12
Rubiaceæ	1	0	1
Rutaceæ	2	1	1
Salicaceæ	2	21	6
Scrophulariaceæ	1	0	1
Simarubaceæ	1	0	2
Sapindaceæ	5	25	1
Saxifragaceæ	5	21	2
Styracaceæ	1	0	2
Tiliaceæ	1	4	0
Tamariscinæ	1	5	0
Urticaceæ	4	9	6
Verbenaceæ	2	0	2
—	—	—	—
40	121	345	132

METEOROLOGY.

REPORT OF OBSERVATIONS TAKEN AT THE ONTARIO AGRICULTURAL COLLEGE DURING 1886.

Observations are regularly taken at the hours of 7 a.m., 2 p.m., and 9 p.m. daily, and recorded in a book printed for the purpose. The instruments in use are as follows:—

Anemometer—Recording the direction of the wind and indicating the number of miles travelled.

Barometer—Showing the atmospheric pressure at the time of observation.

Maximum thermometer—Indicating the highest temperature between times of observation.

Minimum thermometer—Indicating the lowest temperature between times of observation.

Hygrometer—With *dry* and *wet* bulb thermometers, for the purpose of showing the condition of the atmosphere with reference to moisture.

Pluviometer—Used in measuring the rainfall.

Thermometer—For observing ordinary temperature.

Besides taking observations from these instruments, the cloudiness of the sky is observed, and general remarks on the weather for the day are recorded in the daily register. At the close of each month a summary of the month's observations is given to the Guelph papers for publication. From these monthly summaries the condensed statement of the year's meteorology is made out.

In my course of lectures on Meteorology, the practical method of teaching is adopted. The instruments named above are fully described, and the students taught not only how to read them, but also to epitomize the observations taken in such a way as to make them interesting and instructive.

At examination some of the instruments are brought into the class-room and the candidate asked to read them.

FORM OF MONTHLY SUMMARY.

Meteorology.

A summary of the meteorological observations taken at Ontario Agricultural College during the month of.....

Normal height of barometer at Guelph (1,100 feet above sea level and 858 above Lake Ontario), 28.86 inches. Latitude north 43°-38'.

Barometer—

Highest barometer.
Lowest “
Highest mean barometer.
Lowest “ “
Monthly “ “
Monthly range.

Thermometer—

Highest thermometer.
Lowest “
Highest mean thermometer.
Lowest “ “
Monthly “ “
Monthly range.

Pluviometer—

Days rain fell.
Greatest rainfall.
Days snow fell.
Greatest snowfall.
Total precipitation.

Anemometer—

Direction of wind.
Greatest number of miles travelled in twenty-four hours.
Greatest velocity per hour.
Mean velocity per month.

Clouds—

Cloudy days.
Clear days.
Mean cloudiness for the month.

SUMMARY OF METEOROLOGICAL RESULTS FOR 1866.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Barometer—	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
Highest barometer....	29.380	29.266	29.420	29.260	29.108	29.120	29.100	29.140	29.268	29.326	29.226	29.368
Lowest ".....	28.016	28.000	28.070	28.272	28.278	28.438	28.636	28.536	28.540	28.222	28.092	28.184
Highest mean barom'er	29.226	29.122	29.192	29.227	29.068	29.071	29.068	29.100	29.238	29.312	29.151	29.267
Lowest ".....	28.091	28.138	28.062	28.286	28.482	28.488	28.644	28.889	28.580	28.341	28.190	28.270
Monthly ".....	28.777	28.866	28.737	28.928	28.756	28.848	28.836	28.839	28.943	29.101	28.760	28.844
Monthly range.....	1.364	1.988	1.350	.988	.830	.682	.464	.604	.728	1.104	1.134	1.184
Thermometer—	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.	deg's.
Highest temperature..	48.9	47	51.1	81.1	78.8	86.1	90	92.3	86.5	76	66.5	42.5
Lowest ".....	-10.5	-23.5	-10.2	14.6	30.5	37.0	41.4	41.5	34.5	27.2	8.6	-12.1
Highest mean ".....	43.5	36	43.4	63.3	66.8	76.1	77.4	75.9	71.7	60.4	52.1	36.7
Lowest ".....	-5	-11.2	1.9	23.5	44.3	50.1	60	56.0	45.0	31.8	13.5	-9
Monthly ".....	13.6	16.2	27.3	44.1	54.2	62.1	65.9	64.5	42.1	47.0	29.6	17.4
Monthly range.....	59.4	70.5	61.3	64.5	48.3	49.1	48.6	50.8	52.0	48.8	57.9	54.6
Pluviometer—												
Number days rain fell.	3	2	5	8	5	12	6	7	13	8	4	1
" " snow fell	12	11	6	4	2	.....	.....	.....	.....	.....	9	13
Greatest rainfall, inches	.69	.32	.32	.78	.72	.67	1.1	1.25	.54	1.21	1.4	.08
Rainfall for month, in.	1.16	.35	1.30	2.53	1.22	2.77	1.99	4.31	2.79	2.34	2.13	.08
Greatest snowfall, in.	6	2.6	.50	.6	.33	.....	.....	.....	.....	.....	1.0	5.0
Snowfall for month, in.	19.6	15.9	2.20	7.61	.36	.....	.....	.....	.....	.....	3.55	21.5
Total precipitation....	3.12	1.94	1.52	3.31	1.26	2.77	1.99	4.31	2.79	2.34	2.48	2.23
Anemometer—												
Predominating wind..	N. W.	S. W.	N. W.	E.	N. W.	N. W.	N.	N. W.	W.	N. W.	W.	S. W.
Greatest No. of miles in 24 hours.	659	819	703	743	473	480	410	545	485	943	1008	619
Mean velocity for the month.....	15.2	15.9	5.3	12.2	11.5	9.9	8.4	9.2	10.2	11.2	12.2	13.2
Clouds—												
Cloudy days.....	19	18	18	14	16	15	11	23	10	18	22	20
Clear ".....	5	6	11	11	14	12	15	7	13	8	7	5
Mean cloudiness for month.....	7.8	6.5	5.7	5.2	4.8	4.9	4.4	6.7	4.8	5.7	6.7	7.1

MEAN METEOROLOGICAL RESULTS FOR THE YEAR 1886.

	1886. — GUELPH.	Average of 40 Years. — TORONTO.
BAROMETER.		
Month of highest mean pressure	October.	September.
Highest mean monthly	29.312	29.664
Lowest " "	28.062	29.572
Month of the lowest mean	March.	June.
Highest pressure	29.420	30.358
Lowest " "	28.016	28.692
THERMOMETER.		
Mean temperature of the year	40.3	44.17°
Warmest month	July.	July.
Mean temperature of the warmest month	77.4	67.64°
Coldest month	January.	February.
Mean temperature of the coldest month	13.6	22.73°
Highest temperature	92.3	91°
Lowest temperature	-23.5	11.9°
Range of the year	115.8	102°
PLUVIOMETER.		
Total depth of <i>rain</i> in inches	22.97	28.30
Number of days on which <i>rain</i> fell	74	110
Month in which the greatest depth of <i>rain</i> fell	August.	September.
Greatest depth of <i>rain</i> in one month	4.31	3.55
Month with most <i>rainy</i> days	September.	October.
Greatest number of <i>rainy</i> days in one month	13	13
Total depth of <i>snow</i> in inches	70.72	.....
Number of days on which <i>snow</i> fell	57	.....
Month in which the greatest depth of <i>snow</i> fell	December.	.....
Greatest depth of <i>snow</i> in one month	21.5	.....
Month with most <i>snowy</i> days	December.	.....
Greatest number of <i>snowy</i> days in one month	13	.....
Total precipitation in inches	30.04	.....

DIAGRAM ILLUSTRATING THE MEAN METEOROLOGICAL RESULTS FOR 1886.

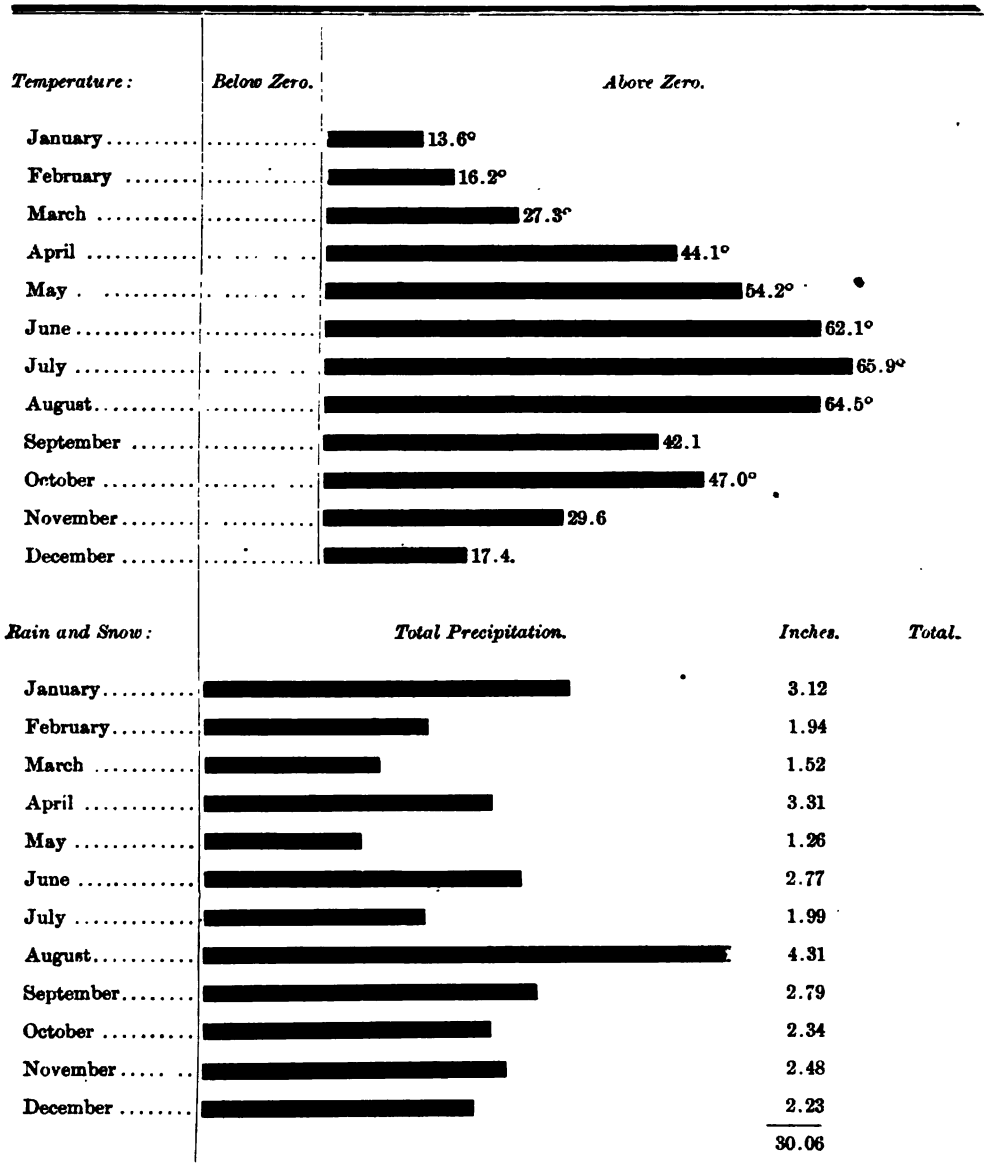


























 DIAGRAM ILLUSTRATING THE MEAN METEOROLOGICAL RESULTS.—*Continued.*

<i>Wind:</i>	<i>Miles Travelled.</i>	<i>Miles.</i>	<i>Direction predominating.</i>
January		659	E. 1 month.
February		819	N.W. 6 "
March		703	S.W. 5 "
April		743	N. 1 "
May		473	W. 2 "
June		480	
July		410	
August		545	
September		485	
October		943	
November		1008	
December		619	
<i>Cloudiness:</i>			
January		7.8	
February		6.5	
March		5.7	
April		5.2	
May		4.8	
June		4.9	
July		4.4	
August		6.7	
September		4.8	
October		5.7	
November		6.7	
December		7.1	

J. HOYES PANTON,
Professor Natural History and Geology.

PART III.

REPORT

OF

THE PROFESSOR OF CHEMISTRY.

ONTARIO AGRICULTURAL COLLEGE,

December, 1886.

To the President of the Ontario Agricultural College, Guelph, Ontario :

DEAR SIR,—In presenting to you my first report, as Professor of Chemistry, I beg to offer to yourself, to Prof. Brown, and to the Commissioner of Agriculture, Hon. A. M. Ross, my sincere thanks for your hearty co-operation and assistance in meeting my wishes and the wants of the Chemical department during the past year. I trust that the evidence of the past will be the earnest of greater things in the future. Further, I feel indebted to all connected with this College for the reception I have received.

The subjects of the first and second year were continued by myself until the end of the winter term. In Practical Chemistry, with the second year, I have endeavoured to reduce the work so as to be practicable within the limited time of the spring term. It being found impossible to give any instruction in quantitative analysis within the time allotted, that subject has been reserved for the third, or post-graduate year. With that exception, I think the whole work of the first and second years, as laid down in the published *syllabus*, has been covered; though, of course, no single subject has been exhausted. The subjects handled in these two years are to be enlarged and developed in the third year.

As regards apparatus and accommodation, I have endeavoured to make the best of what I found at my disposal. Some of the results of the work accomplished have been published in bulletin form. Two bulletins were issued from the Chemical department. The first one was on the subject of salt—a comparison between leading English and Canadian brands. There has existed, in past years, a strong prejudice against Canadian salt, everything under the name or brand of Canadian being at once condemned by the public as inferior to anything of the nature of salt bearing an English name or brand. The origin of this prejudice was doubtless well founded, but its continuance being a subject of doubt, I undertook an investigation of the subject. The analyses were not made to compare or contrast one Canadian brand with another, but to compare average Canadian salt with average English salt. All the Canadian brands were not obtained, nor were all the English; those analyzed were procured in the Guelph market, and may be taken as fair representatives of the two classes. In cases where a manufacturer asked me for the analysis of his own salt, I gave it, but gave to him that of no other.

The comparison results very favourably to Canadian brands; all the samples of Canadian salt may be considered as being very good, though there is room for still further improvement.

Five Canadian and four Liverpool salts were analyzed. Each was analyzed twice and the average taken, as given in the table below. While these analyses were in progress, a sample of salt was sent to the Dairy department for investigation. It was handed to me for analysis, and as the name neither of manufacturer nor of user was given me with the salt, I added it as "No. 10, unknown." It was appended merely to shew the composition of an impure salt for contrast with the others. The comparison stands between Nos. 1 to 5, and Nos. 6 to 9.

Common salt consists of sodium chloride (97 per cent. to 98 per cent.), water, calcium sulphate or gypsum ($1\frac{1}{4}$ per cent. to $2\frac{1}{2}$ per cent.), calcium chloride, magnesium chloride, with traces of sand, clay, iron and dirt. The gypsum should not exceed $1\frac{3}{4}$ per cent. to 2 per cent.; in excess it makes the salt difficultly soluble and produces a slime. The chlorides of magnesium and calcium are very soluble, and attract moisture from the air. The magnesium salts impart whatever bitter taste may be apparent.

Most of the samples were taken from sacks of fine dairy or table salt, procured for the Dairy department by Prof. Robertson.

The following is the

CHEMICAL ANALYSIS.

No.	BRAND.	Order as to purity.	Sodium chloride.	Water.	Calcium and magnesium chloride.	Calcium sulphate.	Residue.	Total impurity.
1	Canadian.....	2nd.	97.66	0.49	0.13	1.63	0.09	1.85
2	Canadian.....	4th.	97.11	0.71	0.23	1.87	0.08	2.18
3	Canadian.....	8th.	94.26	3.29	0.47	1.93	0.05	2.45
4	Canadian.....	5th.	97.18	0.58	0.24	1.95	0.06	2.24
5	Canadian.....	6th.	96.61	1.11	0.27	1.86	0.15	2.28
	Average.....	.....	96.564	1.236	0.268	1.848	0.084	2.200
6	Liverpool.....	1st.	97.12	1.09	0.26	1.45	0.08	1.79
7	Liverpool.....	3rd.	97.20	0.75	0.25	1.72	0.08	2.05
8	Liverpool.....	7th.	96.93	0.69	0.31	1.88	0.19	2.38
9	Liverpool.....	9th.	96.47	0.94	0.23	2.26	0.10	2.59
	Average.....	.....	96.930	0.868	0.263	1.828	0.113	2.203
10	Unknown.....	10th.	93.00	1.79	0.55	3.70	0.96	5.21

The "residue" in the above table is the insoluble or difficultly soluble portion.

The average impurity of the five Canadian salts is 2.200 per cent.; the average impurity of the four Liverpool salts is 2.203 per cent. There is as much difference between the various English brands as between the English and Canadian, and the average of the latter is a little ahead of the average of the former. If allowance be made for the water, the apparent advantages of the Liverpool salt will disappear and the average stand about equal.

PHYSICAL ANALYSIS.

By means of fine sieves, each sample was divided into four classes; these were weighed, and an estimate made of the uniformity and fineness of the different brands. Taking 100 as the maximum of uniformity and fineness, the salts were arranged in the following order: No. 6, 88; No. 4, 87; No. 7, 86; No. 1, 84; No. 9, 83; No. 2, 72; No. 8, 69; No. 3, 66; No. 5, 54; or (1) Liverpool, (2) Canadian, (3) Liverpool, (4) Canadian, (5) Liverpool, (6) Canadian, (7) Liverpool, (8) Canadian, (9) Canadian. In this respect the Liverpool salts are a little ahead, being on the average a little more uniform.

SOLUBILITY.

On the average the Liverpool salts are a little more readily soluble than the Canadian. The purer a salt the more thoroughly it dissolves, but not necessarily the more quickly. The rapidity of solution depends upon the *shape* of the grain as well as upon the *size*: the more soluble salts are flat, thin, disc-shaped; the more insoluble are compact and cubical in grain. No 1, for instance, is quite pure and small in grain, but very difficultly soluble; it is gritty in feel; No. 6, the purest and finest, stands fourth. In choosing a salt, then, attention should be paid to the shape of the grain; for a quick pickle the flat grain is preferable, and for dry-curing and slow pickle the compact grain. The best Canadian salts are slow in solution, the best Liverpool a little more rapid. Too often Canadian salts have been condemned because a slowly dissolving salt has been used where a rapidly dissolving salt was required; for instance, in the salting of butter for immediate use. Dealers and users of salt seem to pay too little attention to this important question of solubility.

In the salting of food for immediate use, butter and pork for example, also in the case of vegetable pickling, the rapidly dissolving salts are best. In the dry-curing of meat, the making of a lasting pickle, the salting of dairy products to be stored for some time, a more slowly dissolving salt is preferred. For table use a fine salt of uniform grain, clean and white, dry and quickly dissolving, is required. Such a salt as the latter is required also for butter-making, and there seems to be lacking just such a salt among the Canadian brands. The best Canadian salts are either too hard in grain or too large for this immediate use. If such a brand were available Canadian salt would have no fear of competition with Liverpool salt.

STRENGTH OF BRINE.

The value of a salt cannot be accurately determined from the specific gravity of the brine it produces, as the weight can be increased by increasing the soluble impurities. In mixing brines a hydrometer, or salometer, as it is termed in this connection, does not give exact results as to the purity of a salt or the saltiness of a brine; for ordinary purposes, however, it may be used.

COLOUR OF SALT.

A first-class salt should be pure white in colour. All of the Liverpool salts have faint bluish tinge; two of the Canadian salts, from the same locality, have a faint reddish cast. These colours are perhaps due to the shells of animals deposited in or beside the salt brines. Enough of the red colouring matter was obtained to determine it to be due to the presence of iron. A very decided red or blue cast should condemn a salt for use. One packer gave as his experience that a dark salt colored the outside of the meat dark also, though he was of the opinion that neither that nor the sliminess produced by some salts affected the interior of the meat.

CHARACTERISTICS OF A GOOD SALT.

A first-class salt should be: 1st, clean; 2nd, white; 3rd, comparatively dry; 4th, uniform in grain; 5th, quite thoroughly soluble in water; 6th, scale-like in grain for quick, and compact for slow solution.

In following such directions no one should have been deceived in purchasing or in using such a salt as No. 10, since its appearance showed its impurity quite distinctly. With such a guide, also, any intelligent purchaser should be able to select a Canadian salt suitable for his purpose. The only difficulty he will meet with will be in finding a quickly soluble salt suitable for some grades of butter. The manufacturers should endeavour to meet the demands of the butter makers, and produce a salt fully equal to the best Liverpool, being clean and pure in composition, uniform in grain and quick in solution.

There are doubtless some poor brands of Canadian salt, but so there are also poor brands of English salt. Whether the Government should allow poor brands to be manufactured or whether they should be killed out by compelling the manufacturer to publish the analysis of his salt is a question worth considering. From the investigation I am convinced that we can compete with the English manufacturers. The analysis of a single sample is not sufficient to guarantee or condemn any brand as a whole; the best way in which to obtain a good Canadian salt is to buy only from reliable makers and use the eyes, hands and tongue, in determining the requisites of a good brand.

I spent considerable time among the packers and dealers of Toronto, and found that the prejudice was being removed; that Canadian salt would be used if guaranteed pure enough, and if suitable for the work. In some cases Canadian salt is being used although the consumers believe their food is preserved and flavoured with Liverpool salt.

MARL.

From time to time samples of marl are received for identification and analysis. The enquiries in reference to the nature, use, and value of such deposits, led me to make an investigation of the samples at my disposal. The common occurrence of marl, and the general desire for information in reference to all natural supplies of fertilizers, warrant a reproduction of the conclusions in this report.

Marl is frequently found below deposits of muck or humus, in swamps and low land, sometimes quite near to the surface. It is then of a slate or bluish-white color, wet and spongy, darkened a little on top from the overlying dark soil. Upon exposure to the air it dries to a white crumbly mass, light in weight, and showing its origin in the shells of various sizes with which it is filled. Of such a nature is No. 4 of the table below, which was dug up on the Experimental Farm, Guelph.

In some localities the marl bed is found exposed, high and dry, ready for immediate application to land. When found lying low and soaked with water, it should be dug out and exposed to the weather. The fall is the best time for excavating. Let it lie in heaps; in the Spring it will be found thoroughly pulverized by the winter's frosts.

Its deposit beneath humus or swamp muck can be accounted for in the same way as the deposit of salt in the ocean; inflowing streams of hard water bring their loads of lime and sand to the swamp basin: the water having no outlet, accumulates, or evaporates, and drops its load of lime upon the bottom of the basin. Years serve to increase the accumulation. Being heavier than the humus it falls through and forms a bed or layer underneath. Many beds are nothing else than beds of more or less decomposed and disintegrated shells. If compacted together the deposit is not marl but limestone. When largely composed of fossils, phosphoric acid will be found, sometimes forming a very large percentage. Fossiliferous limestone, or shell marl, will be on this account more valuable than the common deposits of carbonate of lime.

To distinguish marl from clay, pour upon it a small quantity of acid, and if it be marl it will effervesce. To test its value quickly, place a small lump in an earthen dish and pour upon it a little hydrochloric acid; the less residue undissolved the better the sample of marl. The effervescence is caused by the setting free of carbonic acid gas from the carbonate of lime, of which marl is principally composed. The carbonate of lime or calcium is the most valuable ingredient. In addition will be found small quantities of sand, magnesium carbonate, oxides of iron and aluminum, and variable quantities of phosphate of lime. Marl, however, is generally a lime fertilizer, and is used as such.

The results of analyses are given in the following table, in which some of the percentages are wanting, though the important ones are given. The first seven were analyzed lately at the laboratory of the Ontario Agricultural College by myself. Nos. 1, 2 and 3 came from north-eastern Ontario; No. 4 is from the Experimental Farm, direct from a low-lying bed; No. 5 is a weathered sample, locality unknown; No. 6 is from near Toronto; No. 7 is from Quebec; No. 8 is an Ontario marl, analyzed by the

Connecticut Station ; Nos. 9, 10, 11 and 12 are Michigan marls, analyzed at the Michigan Agricultural College, Lansing ; Nos. 13 and 14 are from North Carolina.

No.	Water.	Sand—insoluble matter.	Oxide of Iron and Aluminum.	Magnesium Carbonate.	Lime or Calcium Carbonate.
1	2.82	1.13	1.84	1.29	92.92
2	11.10	2.48	1.37	1.27	88.78
3	20.64	1.09	0.92	0.98	76.37
4	53.90	1.42	0.52	1.18	42.98
5	2.25	5.51	1.16	1.84	89.24
6	1.56	1.54	1.89	0.72	94.29
7	2.41	0.83	0.76	96.00	
8	2.51	0.41	0.29		94.69
9	1.43	13.00	1.43	4.54	79.60
10	.....	36.79	1.05	6.00	56.16
11	.....	5.50	.....	2.00	90.00
12	.....	16.00	.....	2.50	90.00
13	.....	74.86	.....	.....	10.57
14	.....	0.48	.....	.....	94.00

The following is an analysis of a fossiliferous limestone ; it might also be taken as the analysis of an extra rich phosphatic marl :—

Sand, 6.89 per cent. ; Carbonate of Lime, 70.00 per cent. ; Phosphate of Lime, 14.87 per cent.

Such a sample would be worth about \$7 per ton.

According as the lime, clay or sand predominates, the marl is classed as calcareous, clayey or sandy. The Ontario samples are calcareous ; the 13th is a sandy marl.

As before noticed marl is generally a lime fertilizer ; phosphoric acid when present adds to its value. The effects of an application of marl are either physical or chemical. Physically it serves to give lightness and looseness to soils and thus render them more-workable. Chemically it serves as a direct food to the plant, being used in the building up of stem and stalk. It will be found of especial value, therefore, to plants developing stem and leaf—grasses are especially benefitted by lime ; clover demands lime in the form of gypsum ; so also with roots. It corrects acidity or sourness in soils. It helps to decompose and render available the mineral matter of the soil, especially the silicates. It greatly assists in the decay of vegetable compounds, whether found in the compost heap or in the soil.

APPLICATION.

The nitrogen of swamp muck, (humus) is unavailable in its ordinary condition. Thoroughly drain the swamp and apply sixty to seventy-five bushels of marl per acre. No benefit will result unless draining be done, as marl is a great absorbent of moisture.

On light soils apply about 25 bushels per acre, sufficient to help the decomposition of organic matter and supply lime to the crops. If the soil be very porous and subject to drouth apply more—the marl will improve its water-holding power. Since lime quickly filters through a soil, it will be found better to harrow in the marl lightly than to plow under.

For clay lands apply by the waggon-load ; hardly too much can be added. The more marl applied the deeper it should be worked in ; apply muck also if available. Neither marl nor muck should be applied to *undrained* wet land, as they are both great absorbents of water.

Farmers having marl deposits will do well to test their value on different lands. Small plots in a couple of fields will be sufficient. Those not having them should examine their swamps and marshy lands, digging a few feet beneath black soils will often disclose the whitish marl.

Lime, in the form of burnt lime should not be used with farmyard manures. In the changes resulting, ammonia is formed and set free; this is a volatile compound. Lime, in the form of sulphate, i. e., gypsum or land-plaster, is better; it produces ammonium sulphate, a stable compound—in other words, it *fixes* the ammonia.

There is no market for marl at present established in Canada. Its value depends upon its situation and the nature of the surrounding land. The commercial value for lime in fertilizers is sometimes placed at \$5 per ton. At that rate, Ontario dried marls are worth from \$2 to \$3 per ton. Rich marls are sometimes utilized for burnt lime. Phosphoric acid, when present, may be reckoned at the rate of six cents a pound.

DAIRY ANALYSES.

During the summer, fall and early winter, twelve samples of whole milk were analyzed for Prof. Brown, and for Prof. Robertson thirty-two samples of skimmed milk, twenty samples of butter-milk and twenty samples of cheese—eighty-four in all. This work devolved principally upon Mr. Zavitz, the assistant in the Experimental Department.

GENERAL WORK.

Samples of soils, oil cake, cream, water, etc., have been received from various sources and a most varied series of correspondence, all of which have been attended to, so far as the other duties permitted. Being new to the surroundings I was a little later with some of the practical work than I hope to be during the future.

SOIL THERMOMETERS.

The observations of ground temperature were recorded from June 1st to November 1st, on August 15th the 24in. thermometer was broken by an inconsiderate steer. August 1st, Prof. Brown added to our collection three additional pairs of thermometers, which were placed in the three lysimeters containing clover on sand, clay and loam. They registered at the depths of three and nine inches. A careful study of the effects of air and surface temperature upon deep soil temperature will prove interesting.

The soil in which the soil thermometers stood was sandy, bare on top.

One of the principal benefits to be derived from such observations will doubtless be in the study of nitrification in its variation with temperature.

These observations were made at the time and as recorded by Mr. Zavitz.

As shewing the connection between soil temperature and the formation of nitrates in the soil, the following extract from Lawes and Gilbert's report on drainage waters will be appropriate:—

"Nitrification is the work of a living ferment contained in the soil, which is capable of oxidising ammonia and probably other nitrogenous bodies, into nitric acid; the action is, in fact, quite similar to that of the vinegar ferment, which oxidises alcohol into acetic acid. The investigation and establishing this fact we owe to MM. Schloesing and Müntz; their results have been amply confirmed by experiments made at Rothamsted.

The nitrifying ferment is apparently present in all fertile soils; it requires for its activity a sufficient supply of water and air, and also some salifiable base, as chalk; a certain degree of warmth is also necessary. No nitrification will take place in a dry soil; the production of nitrates will increase in activity as the soil becomes wetter, up to the point at which water begins to interfere with the free aëration of the soil. Nitrification is at a standstill near the freezing-point, and gradually increases in activity as the temperature rises, reaching its maximum of energy about 98° Fahr. (37°c.) At a higher temperature it diminishes in activity and ceases altogether at 131° (55°c.). The process of nitrification is probably chiefly confined to the surface soil, where nitrogenous matters are most abundant, and the supply of air greatest; it will proceed with greatest energy in summer-time, and be especially active during a wet summer. The nitrate produced in soil is chiefly nitrate of calcium."

The readings given in our tables are all centigrade.

OBSERVATIONS of Ground Temperature from June 1st to November 1st.

MONTH.	Day.	Time of Reading.	Barometer.	Attached Ther- mometer.	Wet bulb Ther- mometer.	Dry bulb Ther- mometer.	Maximum Ther- mometer.	Minimum Ther- mometer.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.							
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.
June	1	7 a.m. 2 p.m. 9 p.m.	28.810 28.810 28.822	57.0 86.5 64.0	..... ..... .....	54.5 74.5 58.0	..... ..... 75.0	..... ..... 46.0	.....	56.5 84.2 62.0	53.0 62.0 65.0	58.0 62.0 65.0	56.0 57.5 61.0	56.0 56.2 59.0	53.5 53.7 54.0	51.0 51.2 51.3	48.5 48.8 48.8
"	2	7 a.m. 2 p.m. 9 p.m.	28.700 28.554 28.708	60.1 75.0 53.1	..... ..... .....	59.1 70.2 52.2	..... ..... 74.8	..... ..... 50.5	.....	53.8 71.3 56.7	53.0 63.1 60.0	58.6 59.3 61.9	53.2 58.5 60	53.0 58.5 59	51.4 54.6 55.6	51.7 49.0 51.9	48.8 49.1 49.1
"	3	7 a.m. 2 p.m. 9 p.m.	28.824 28.940 28.958	47.5 57.5 52.7	..... 56.2 46.9	47.0 56.8 46.1	..... ..... 58.2	..... ..... 42.7	.....	50.7 66.4 51.2	51.2 60.8 55.9	54.2 57.5 58.9	56.2 55.6 57.8	56.8 56.0 57.0	54.8 54.8 54.6	52.0 52.1 52.1	49.3 49.4 49.6
"	4	7 a.m. 2 p.m. 9 p.m.	28.958 28.846 28.844	48.1 71.5 61.7	45.7 57.5 49.8	47.6 67.8 54.0	..... ..... 69.0	..... ..... 33.3	.....	52.8 72.8 57.1	47.7 69.0 60.1	50.2 62.4 61.8	54 55.1 58.8	55.0 54.8 57.7	54.7 54.4 54.2	52.4 53.5 52.5	49.8 49.8 49.0
"	5	7 a.m. 2 p.m. 9 p.m.	28.784 28.700 28.808	56.7 66.0 58.0	53.0 57.0 52.0	55.4 62.0 53.0	..... ..... 69.8	..... ..... 44.2	.....	56.7 63.5 55.2	53.0 62.2 57.5	54.1 60.7 59.3	55.8 56.8 57.5	56.0 56.1 57.0	54.5 54.3 54.3	52.2 52.2 52.3	50.0 50.0 50.0
"	6	7 a.m.	28.896	55.0	51.5	53.3	77.5	73.5	.....	55.6	51.8	52.7	54.7	55.4	54.5	52.3	50.0
"	7	7 a.m. 2 p.m. 9 p.m.	28.794 28.740 28.974	59.1 73.1 52.2	57.1 61.2 46.0	58.0 67.1 48.2	..... ..... 70.2	..... ..... 47.8	.....	58.8 71.6 53.5	57.8 69.2 57.6	58.3 64.4 60.8	58.0 58.6 59.8	57.8 57.8 59.0	54.8 54.9 55.0	52.7 52.6 52.7	50.1 50.0 50.2
"	8	7 a.m. 2 p.m. 9 p.m.	29.002 29.044 28.968	49.2 72.0 67.6	47.0 55.5 54.9	48.0 67.0 56.0	..... ..... 70.1	..... ..... 39.2	.....	52.0 81.0 62.1	48.5 75.8 65.0	52.1 67.1 66.6	56.6 57.8 62.0	55.4 57.8 60.1	55.3 55.1 55.0	52.8 53.0 53.0	50.3 50.5 50.5
"	9	7 a.m. 2 p.m. 9 p.m.	28.832 28.736 28.652	53.7 75.0 68.0	51.0 59.0 60.7	51.4 66.5 63.0	..... ..... 73.0	..... ..... 40.8	.....	54.8 73.8 65.0	53.7 61.4 65.6	55.7 57.5 61.2	57.8 55.5 61.2	58.2 57.3 60.0	56.8 55.5 55.7	53.0 53.2 53.2	50.6 50.8 50.8
"	10	7 a.m. 2 p.m. 9 p.m.	28.628 28.184 28.732	58.5 63.0 59.0	57.0 63.0 53.0	57.0 67.0 54.2	..... ..... 70.0	..... ..... 52.0	.....	58.0 76.5 56.0	57.1 72.8 58.8	58.1 65.2 61.5	58.8 69.0 60.5	59.0 58.5 60.0	56.0 56.0 56.0	53.3 53.4 53.7	50.9 51.0 51.0

11	7 a.m. 2 p.m. 9 p.m.	28,834 28,884 28,926	56.0 77.5 69.0	50.4 58.5 54.0	55.0 68.5 56.1	..... ..... 71.2	..... ..... 41.5	..... ..... .....	53.7 79.3 62.0	50.7 73.2 64.4	53.0 66.0 66.4	56.3 58.1 62.3	57.2 57.2 60.7	56.2 56.2 56.2	53.8 53.8 54.0	51.1 51.1 51.3
12	7 a.m. 2 p.m. 9 p.m.	28,952 28,932 28,914	57.0 81.5 65.4	53.0 61.0 52.2	53.1 69.5 56.7	..... ..... 71.0	..... ..... 46.0	..... ..... .....	56.7 78.3 62.7	55.4 71.0 64.5	56.8 64.8 66.1	58.5 58.8 62.7	58.8 58.4 61.2	56.5 56.4 56.6	53.8 54.0 54.0	51.3 51.3 51.5
13	7 a.m.	28,864	67.2	61	66	84.1	47.4	.....	68	61	59.4	59.4	59.6	57	54.1	51.7
14	7 a.m. 2 p.m. 9 p.m.	28,742 28,768 28,756	67 94 76	64 ... 66.5	64.2 83.5 68	..... ..... 84.9	..... ..... 57.5	..... ..... .....	68 94.5 71.6	64.2 88.5 75	63.8 78.9 76.6	63.2 66.3 70.2	63 64 67.7	58 59.5 58.8	54.7 55 55.1	51.9 52.1 52.2
15	7 a.m. 2 p.m. 9 p.m.	28,772 28,720 28,690	69.2 95.5 79	66 76.5 69.3	65.7 84.3 72.1	..... ..... 85	..... ..... 61	..... ..... .....	70 95.5 73.5	67.7 87.3 75.8	67.5 78.2 75.8	66.2 68 71	65.8 66 68.7	59.7 60 60.3	55.5 55.8 56	52.5 52.6 52.8
16	7 a.m. 2 p.m. 9 p.m.	28,624 28,656 28,582	72 88.5 77	68.8 74.9 71	69 79.9 72	..... ..... 83	..... ..... 66.6	..... ..... .....	70.8 86.6 71.7	68.8 80.5 73.5	68.8 74.7 74.2	67.7 68.8 70.8	67 66.5 69	62 61.1 61.5	56.6 56.8 57	53 53.1 53.4
17	7 a.m. 2 p.m. 9 p.m.	28,434 28,456 28,576	70 77.8 57	65.4 67.2 54	66 72 56	..... ..... 74.5	..... ..... 55	..... ..... .....	69.4 73.5 58.2	67.3 74.8 63	68 73.2 68	67.6 68 67.8	67.3 67 67.3	63 62 62	57.5 57.8 57.7	53.8 54 54
18	7 a.m. 2 p.m. 9 p.m.	28,734 28,788 28,702	62 65 57	48 53.5 46.8	50 61 49.2	..... ..... 61.8	..... ..... 44	..... ..... .....	58 67 50.3	54.6 64.1 57.9	57.8 65.3 62.5	62.5 62.6 63.7	63.6 63.7 63.7	62 61.6 62.3	58.1 58.3 58.3	54.2 54.4 54.7
19	7 a.m. 2 p.m. 9 p.m.	28,972 28,936 29,020	50 74 77	46.7 57.5 56	48 67 59.3	..... ..... 69	..... ..... 35	..... ..... .....	56.2 82.5 62.3	49.6 77 68.2	52.8 70 66.3	58.7 61 66.3	60 60.3 64	61 60.3 60	58.1 59.2 58	54.7 55 55
20	7 a.m.	29,036	64	54.6	61.2	70.5	42.2	.....	66	58.6	58.4	60.5	61.2	60.4	57.9	55
21	7 a.m. 2 p.m. 9 p.m.	28,968 28,980 28,988	61 72 66	59.3 62.2 60	60 65 61	..... ..... 65.9	..... ..... 55.3	..... ..... .....	60.8 66.7 61.4	60.1 65.7 63	61.4 64.5 63.8	62.4 62.2 62.8	62.7 62 62.8	60.6 60.5 61.7	57.9 58 58	55 55 55
22	7 a.m. 2 p.m. 9 p.m.	28,898 28,874 28,800	61.8 75.2 63	59.9 65.2 58.6	60 68 58.4	..... ..... 68	..... ..... 58.2	..... ..... .....	61.4 72.7 61	60.6 68.7 62.7	61.3 65.7 63.5	61.3 61.9 63.7	61.8 61.7 62.8	60.4 60.2 61	58 58 58	55 55.1 55.1
23	7 a.m. 2 p.m. 9 p.m.	28,696 28,710 28,678	57.5 71 60.2	55 59 58	55.2 62.2 58.2	..... ..... 64	..... ..... 58.9	..... ..... .....	58 69.9 60.7	58.1 67.1 61.7	59.7 63.8 63	60.7 60.7 62.2	61.2 61 62	60 59.8 59.6	57.8 58 57.6	55.2 55.2 55.2

OBSERVATIONS of Ground Temperature—Continued.

Month.	Day.	Time of Reading.	Barometer.	Attached Thermometer.	Wet bulb Thermometer.	Dry bulb Thermometer.	Maximum Thermometer.	Minimum Thermometer.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.							
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.
June	Continued	24	7 a.m. 28.694	62	59.2	59.8	68.7	.....	.....	63.2	60.8	61.1	61.1	61.1	59.8	57.7	55
			2 p.m. 28.718	71.1	63.2	66	.....	.....	.....	69.7	68	66.2	62	61.6	59.7	57.7	55.1
			9 p.m. 28.690	63	59	59.2	68.7	.....	.090	62.2	63.9	55.1	62	62.8	59.7	57.7	55
	"	25	7 a.m. 28.672	63	59.8	60.6	.....	.....	.....	63	61.2	61.6	61.3	61.8	57.7	57.7	55
			2 p.m. 28.682	73	63.6	66.2	.....	.....	.....	71.8	69.8	66.9	62.8	62.2	59.6	57.7	55.2
			9 p.m. 28.708	61.4	58.7	60	69	56.3	.026	61	63	64.8	62.1	62.1	59.8	57.6	55
	"	26	7 a.m. 28.732	62	59	59	.....	.....	.....	61	60.3	60.9	61.2	61.8	59.9	57.7	55.2
			2 p.m. 28.782	72.5	63.8	68.1	.....	.....	.....	73	68.8	65.4	61.8	61.8	60	57.8	55.2
			9 p.m. 28.810	66.2	59	61	70.9	57.4	.....	60.6	62.9	65	63.4	62.8	59.8	57.7	55.2
	"	27	7 a.m. 28.880	67.2	60.5	66	74.8	49	.....	69.2	60	59.5	60	60.8	60	57.7	55.3
			7 a.m. 28.936	61.2	57	61.4	.....	.....	.....	63.2	56.8	57.7	60.3	61.4	60.2	57.8	65.3
			2 p.m. 28.984	82	63.4	73.2	.....	.....	.....	87.8	82.6	72.7	63.1	62	60.2	57.9	65.5
			9 p.m. 28.958	69	67.6	61.2	76.2	60.2	.....	65	70.5	73.2	67.7	66	61	58	55.2
	"	29	7 a.m. 28.936	60.2	54.8	58.8	.....	.....	.....	62.8	58.8	60.2	62.7	63.3	60.8	58	55.5
			2 p.m. 28.902	80	65	75.5	.....	.....	.....	82.7	78.9	71.8	64.2	63.4	60.7	58.2	55.6
			9 p.m. 28.910	65.6	57.2	60.2	76.2	46.2	.....	63	68.2	70.3	67.3	66.1	60.9	58.2	55.5
	"	30	7 a.m. 29.036	63	55	61.2	.....	.....	.....	62.8	59	60.3	63.9	63.7	61.2	58.2	55.6
			2 p.m. 29.110	79	59	69.2	.....	.....	.....	84.6	80	71.1	63.9	63.8	61.2	58.8	55.7
			9 p.m. 29.068	64	52	54	70.8	48.8	.....	60.5	67.2	70.3	67.4	67.2	58.9	55.8	55.8
July	1	7 a.m. 29.030	55	51.6	54	54	.....	.....	.....	57.8	56	59	62.7	63.5	61.7	58.7	55.8
			2 p.m. 29.112	79	71	71.5	.....	.....	.....	81.2	73	65.8	62.2	62.4	61.4	58.8	56
			9 p.m. 29.028	61.6	64	53.2	74.8	41	.....	59	65.8	68.9	67.1	66.1	62.9	58.8	56
	"	2	7 a.m. 29.032	58	.....	58.3	.....	.....	.....	63.8	57.8	59.3	62.4	63.1	61.8	59	56.2
			2 p.m. 29.069	87.2	67	81	.....	.....	.....	83.8	84.5	75	66.2	63.8	61.9	59.2	56.8
			9 p.m. 28.988	73.4	61.5	65.2	82	42.2	.....	67.7	72	73.2	69.1	67.4	61.7	59	56.6
	"	3	7 a.m. 29.024	62	57.8	61.1	.....	.....	.....	65.9	61	62.4	64.5	65	62.1	59.1	56.8
			2 p.m. 29.056	90.4	68	82.2	.....	.....	.....	94.5	86.1	76.1	67	65.6	62.3	59.8	56.9
			9 p.m. 29.002	75.2	62.8	65.2	83	46.9	.....	67.7	73.2	71.8	70.6	68.7	62.2	59.4	56.8

4	7 a.m.	29,040	47	62.6	65.3	87.1	48.6	.....	69.2	75	76.3	72	69.8	63	60	57
5	7 a.m.	29,064	64.2	60.1	62.8	.....	.....	.....	67.8	63.4	65	67	67.2	63.7	60	57.1
	2 p.m.	29,102	94	72	87.6	.....	.....	.....	57	87.5	78.5	69.5	67.8	63.9	60.7	57.6
	9 p.m.	29,026	79.1	64.4	69.3	88	48.5	.....	70.5	75.2	77	72.9	70.8	63.9	60.6	57.7
6	7 a.m.	28,996	68.2	63.4	67.2	.....	.....	.....	76.8	66	66.7	68	68	64.3	60.7	57.5
	2 p.m.	28,996	94.2	72.5	88.5	.....	.....	.....	97.2	88.3	78.9	69.8	67.9	64.3	60.8	57.6
	9 p.m.	28,868	79.5	65.3	74.5	89.8	52.5	.....	74	77	77.2	73	70.9	64.4	61.1	57.8
7	7 a.m.	28,848	74	67	71.8	.....	.....	.....	73.8	70	70.2	69.8	69.3	65	61.2	58
	2 p.m.	28,850	87.5	71	83.7	.....	.....	.....	93.5	85	78.5	71.1	69.5	65	61.3	58
	9 p.m.	28,916	67.5	59.6	64.8	84.5	63.4	.....	67.8	73.9	75.7	73	71.6	65.2	61.5	58.1
8	7 a.m.	29,024	65	56.2	63	.....	.....	.....	67.3	64.2	66.3	68.2	68.4	65.5	61.7	58.3
	2 p.m.	29,036	81.2	62	74.8	.....	.....	.....	88.3	80.9	75	69	68.1	65.6	62	58.7
	9 p.m.	28,982	72.5	57	61	80	52.4	.....	66	73.2	71.9	72	70.6	65.2	62	58.7
9	7 a.m.	28,910	60	55.5	58.2	.....	.....	.....	63.4	63.2	65.4	67.2	68	65.3	62	58.8
	2 p.m.	28,904	83	63	73.2	.....	.....	.....	80.4	76	72.1	68	67.4	65.3	62.1	58.9
	9 p.m.	28,848	73.8	58.1	61.3	77.7	52.5	.....	65.2	72.8	75.2	72.4	70.2	65.3	62.2	58.9
10	7 a.m.	28,810	65	60.6	64.2	.....	.....	.....	67.8	64	65	66.5	67	65	62	59
	2 p.m.	28,812	83.2	67.8	77.8	.....	.....	.....	86.8	81	74.7	68.1	67.2	65.1	62.2	59.1
	9 p.m.	28,768	67.1	69.9	64.2	79	51.9	.....	65.2	69.2	72	70.1	69	61.8	62.2	59.1
11	7 a.m.	28,802	63	58.7	61.3	78.8	51.8	.....	66.3	63.2	64	66	66.8	65	62	59.1
12	7 a.m.	28,840	56.5	52	57.3	.....	.....	.....	69.6	61	61	64.6	65.8	65	62.1	59.2
	2 p.m.	28,850	82.3	62.2	74	.....	.....	.....	89.5	82.6	74.8	66.8	65.9	64.8	62.2	59.2
	9 p.m.	28,798	68.4	54	57	76.1	36.9	.....	62.8	69	72.6	70.2	68.9	64.4	62	59.3
13	7 a.m.	28,764	61.2	55.8	60.2	.....	.....	.....	67.6	62	62.6	65.4	66.2	64.7	62	59.3
	2 p.m.	28,772	78.5	59.2	70.2	.....	.....	.....	75.3	73.5	70.5	66.3	65.6	64.5	62	59.3
	9 p.m.	28,712	66	56	62.2	73.4	48.9	.491	64.8	67	69	67.8	67	64.2	62	59.3
14	7 a.m.	28,568	63.2	61	62	.....	.....	.....	62.2	62.2	63.7	66.7	65	64.1	62	59.3
	2 p.m.	28,692	62.5	59.4	60	.....	.....	.....	61.8	62	63.2	63	64.3	64	61.9	59.2
	9 p.m.	28,702	58.8	57	57.2	64.2	56.3	.008	58.9	59.9	62.2	63.3	64	63.8	61.9	59.2
15	7 a.m.	28,632	59	57	58.2	.....	.....	.....	58.8	60.3	60.3	61.8	62.6	63	61.6	59
	2 p.m.	28,636	64.3	60.2	61.2	.....	.....	.....	64	63.2	63	62	62.8	62.8	61.6	59
	9 p.m.	28,664	62	59.9	61	64	55.1	.028	61.4	62	63.2	62.8	63	62.6	61.2	59
16	7 a.m.	28,682	60	57.3	58.2	.....	.....	.....	60	59.3	60.8	61.8	62.3	62.1	61	58.8
	2 p.m.	28,740	82.1	68	73.3	.....	.....	.....	81.5	76.5	71	67	63.1	62.1	61	59
	9 p.m.	28,706	72.1	62.5	65.1	78.1	56	.....	65.5	67.3	69.2	64	65.8	62.2	61	59

OBSERVATIONS of Ground Temperature—Continued.

Month.	Day.	Time of Reading.	Barometer.	Attached Ther- mometer.	Wet bulb Ther- mometer.	Dry bulb Ther- mometer.	Maximum Ther- mometer.	Minimum Ther- mometer.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.							
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.
July—Continued	17	7 a.m. 2 p.m. 9 p.m.	28.728 28.792 28.804	62.3 83.5 60.8	58.2 68.2 57	60.5 75.8 59	78.1	52.9	.....	61.8 84.8 61.8	59.7 80.8 67	61.3 73.2 70.3	63.3 65.3 68.1	64 64.3 67	62.5 62.7 62.6	60.7 60.8 60.8	58.7 58.8 58.7
"	18	7 a.m.	28.820	55	52.8	54	60	52.6	.....	57.7	59	62.2	64	64.8	62.9	60.8	58.5
"	19	7 a.m. 2 p.m. 9 p.m.	28.746 28.742 28.720	54.5 78.3 64.2	52 62.8 59.7	53 71.2 61.5	.....	.....	.....	61.8 83 63.3	55.1 72.2 66.2	57.4 72.2 68	60 63.1 66	61.2 62.1 65	62.2 62 62	60.6 60.7 60.6	58.5 58.7 58.6
"	20	7 a.m. 2 p.m. 9 p.m.	28.714 28.748 28.708	61.3 81.2 68	58 65 61	59.1 73.1 64.1	.....	51.8	.....	64.4 88.2 67.7	60 78.7 70.6	61 73 71.7	63 64.7 68.1	63.5 63.7 66.7	62 62.2 62.1	60.5 60.5 60.5	58.6 58.5 58.4
"	21	7 a.m. 2 p.m. 9 p.m.	28.662 28.638 28.648	60.3 83 67.1	56 66.6 58.5	58 78 62	.....	47	.....	67.2 87.3 66	60.7 80.9 71	61.7 76 72.8	63.9 66.7 69.2	64.6 65.2 67.9	62.6 62.7 62.7	60.5 60.5 60.5	58.5 58.5 58.5
"	22	7 a.m. 2 p.m. 9 p.m.	28.790 28.866 28.894	53 77.9 65.6	48.6 60 56.2	52.2 71 59.1	.....	41	.....	63.5 89.4 64.7	58.5 81.9 71	60.2 76 73	64 66 64.8	65 65 68.1	63 63.1 63	60.5 60.9 60.9	58.5 58.7 58.6
"	23	7 a.m. 2 p.m. 9 p.m.	28.940 29.022 29.010	56.8 79 58	52.5 62.5 56.7	55.5 74.2 60.6	.....	40.7	.....	65.6 86.8 63.5	59.7 79.6 70	61 74.6 72.4	64.4 66.2 69.5	65.1 66.2 67.9	63.3 63.4 63.2	60.8 61.2 61	58.6 58.9 58.8
"	24	7 a.m. 2 p.m. 9 p.m.	29.026 29.002 28.874	60 89 70.5	56.2 68.8 61.5	59.2 79.2 65.4	.....	.....	.....	66.4 93 69.1	60.8 82.6 71.9	61 76 73	63.2 66.1 59.8	64.8 65.1 68.4	63.5 63.7 63.4	61.1 61.4 61.2	58.8 59 59
"	25	7 a.m.	28.712	69	63	67.2	87.5	60	1.260	71	66.7	67	67	67	63.8	61.2	58.9
"	26	7 a.m. 2 p.m. 9 p.m.	28.708 28.708 28.682	66.5 80.1 69	64 70.3 64.8	65 71.7 65	.....	60	.....	66.6 83.8 66.8	66.2 77 69	67.5 72.8 70.2	68 68 69	68 67.5 58.2	64.6 64.8 64.7	61.6 61.8 62	59 59.4 50.1

“	27	7 a.m. 2 p.m. 9 p.m.	28,686 28,782 28,764	68.7 87.4 73.2	64.8 69.5 59.5	66.5 79.8 61.5	..... ..... 80.2	..... ..... 59	..... ..... 170	70.6 84.2 61.6	65.8 80.4 56.8	65.7 76.4 70.2	66.2 68.8 70	66.8 67.6 69.1	64.7 64.7 64.7	62 62.2 62	59.2 59.5 59.4
“	28	7 a.m. 2 p.m. 9 p.m.	28,716 28,728 28,692	59.2 81 76	57.1 68.2 65.3	58.5 74 69	..... ..... 77.5	..... ..... 60	..... ..... 044	62.3 76 66.1	59.1 70.5 68.2	61.7 68.8 69.7	65.1 66.2 68	66.2 66 67.2	65 64.8 64.6	62 62.2 62.2	59.4 59.6 59.6
“	29	7 a.m. 2 p.m. 9 p.m.	28,648 28,712 28,744	69 84.4 70.8	64 72.5 64.1	67 79.2 67.1	..... ..... 82.3	..... ..... 63.1	..... ..... 66.2	64.7 77.8 66.2	64 74.1 68.7	65 71.9 70.2	65.4 67 68.7	66 66.2 68	65.6 64.5 64.4	62.2 62.4 62.2	59.6 59.8 59.8
“	30	7 a.m. 2 p.m. 9 p.m.	28,804 28,868 28,868	61 79 66.4	56 64.2 63.1	59.3 75.6 63	..... ..... 76.2	..... ..... 52	..... ..... 64.8	64.4 85.4 64.8	60.1 78.7 68.6	62 72.7 70.7	65 66.2 69	65.8 65.8 68	64.7 64.7 64.4	62.2 62.4 62.3	59.8 60 60
“	31	7 a.m. 2 p.m. 9 p.m.	28,850 28,892 28,834	61.8 90.2 76.1	59.4 62.5	61 79 63.2	..... ..... 81.4	..... ..... 51.9	..... ..... 69	64 94.4 69	61.2 86.8 74.4	62.2 78.8 76	64.8 87.8 72	65.5 66.5 59.8	64.5 64.5 64.4	62.2 62.5 62.3	59.8 60 60

OBSERVATIONS of Ground Temperature—Continued.

Month.	Day.	Time of Reading.	Barometer.	Attached Thermom-eter.	Wet bulb Thermom-eter.	Dry bulb Thermom-eter.	Maximum Thermom-eter.	Minimum Thermom-eter.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.							TEMPERATURE OF DIFFERENT SOILS.						
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.	Loam.		Clay.		Sand.	
																		3 inches.	9 inches.	3 inches.	9 inches.	3 inches.	9 inches.
August	1	7 a.m.	28.702	65	62	64.7	81.5	53.1	...	68.8	64	65	67	67.3	65	62.3	59.9	65	68	64.7	68	66.8	69.8
"	2	7 a.m.	28.692	57.7	54	56.2	...	...	...	63	60	62.5	66	66.7	65.2	62.7	60	60	65.8	60	66.8	62.5	68
"	2	2 p.m.	28.712	66.7	54.3	63	...	...	...	76	74.4	71.1	66.5	66	65	62.8	60.1	74.3	69.8	73	67.2	76.3	68.3
"	9	9 p.m.	28.716	54	48.7	52.2	63.1	50.3	...	56.1	63	67.1	68	67.6	65	62.7	60.1	65	70.2	60.1	67.9	64.6	70
"	3	7 a.m.	28.766	54.7	50	53	...	...	...	57.1	57	59.4	63.1	64.1	61.7	62.7	60.1	57.7	62.2	56.2	62.8	58.8	64.5
"	3	2 p.m.	28.870	66.5	56.5	64	...	...	...	74	70.8	69.6	63.7	63.8	64.5	62.8	60.2	76	66	70.5	63.8	73.2	64.8
"	9	9 p.m.	28.876	56	49.6	52.2	65.7	47	...	55.7	62.1	65.6	65.8	65.4	64	62.7	60.1	64	68.2	60.2	65.7	63.3	67.5
"	4	7 a.m.	28.896	55.1	50.1	52	...	...	...	62.3	54	56	61	63.2	63.8	62.4	60.5	53.5	59.2	56	60.7	56.7	62
"	4	2 p.m.	28.922	73.1	60.1	69.8	...	...	...	81.4	75.6	70	62.8	62.8	63.7	62.5	60.4	82	66.7	77.7	63.8	78.5	64
"	9	9 p.m.	28.878	57.3	49.7	53.1	71	39.1	...	57	63.4	66.8	65.9	65	63	62.5	60.4	65.8	69.4	62.1	66.5	64.7	68.1
"	5	7 a.m.	28.904	50	47.8	48.8	...	...	...	53.8	54	56.7	61	62.1	63	62	60	55	60	55.5	61	56.2	62.2
"	5	2 p.m.	28.926	77.2	58	65	...	...	...	76	75.3	72	64.2	63.2	62.8	59.9	60	79	69.8	74.8	78.6	65.7	...
"	9	9 p.m.	28.910	64	52	55.5	71	39.2	...	59.1	65	68	65.4	64.5	62.8	61.7	60	66.7	69.2	64.1	66.3	56.6	67.3
"	6	7 a.m.	28.894	58.1	54.8	58.6	...	...	...	65	56.6	57	60.7	62	62.7	61.7	60	55.3	59.5	58.7	60.8	58.2	61.9
"	6	2 p.m.	28.894	77.3	60	69.2	...	...	...	78.5	76.3	72	63.5	62.6	62.7	61.8	60	78.6	67.8	75.9	64.7	76	64.4
"	9	9 p.m.	28.854	64	52.4	56.8	72.2	38.2	...	59.8	66.1	68.8	66.2	65.1	62.5	61.4	59.8	67.2	69.8	64.7	67.4	66.8	67.9
"	7	7 a.m.	28.846	54	54	59	...	...	...	64.6	56.8	57.8	61.3	62.5	62.6	61.2	59.6	55.6	60.2	58.7	61.6	58.1	62.8
"	7	2 p.m.	28.878	64.7	64.7	64.7	...	...	...	92	82.8	74.8	64	63	63.8	61.5	59.7	87.7	69	85.5	65	83.7	65
"	8	8 p.m.	28.888	63	55	57.2	77.5	40	...	61.4	67.8	70.6	68	66.7	62.4	61.2	59.6	69.8	72.8	67	69.2	69.1	70.2
"	8	1 a.m.	28.988	58	55.2	57.5	84	46.3	...	64.1	59	60.8	63.4	64	63	61.2	59.5	59	63.4	61	63.9	60.8	65.4
"	9	7 a.m.	29.076	61.2	59	61.2	...	...	...	63.8	66	62.6	65	65.2	63.3	61.2	59.4	61.1	65.7	62	65.8	62.5	67.6
"	9	2 p.m.	29.120	88.5	71	85	...	...	...	91.8	82.4	76.1	67	65.8	63.7	61.8	59.7	89.4	73	86	69.3	87.4	69.4
"	9	9 p.m.	29.074	73.5	63	68	86	51	...	67	72.3	73	70	68.5	63.7	61.8	59.5	74.5	75	67.1	67.2	74	73.3
"	10	7 a.m.	29.028	70.5	66	69.2	...	...	...	71.7	65	68	66	66.2	64	61.8	59.6	65	67.1	67.1	67.1	67.3	68.9
"	10	2 p.m.	28.952	89	72.4	72.4	...	...	...	93.2	84.2	78	68.7	67	64	62	59.9	91.4	75	86	71.2	89.8	71.2
"	10	m.	28.866	76	66.2	72.3	87	55	...	72.1	74	74.6	71	69.2	64.1	62	59.8	77.1	76.6	74.6	72.8	77.7	274.6

11	7 a.m.	28.814	73.2	67	69.6	68.7	68.5	68	67.8	64.8	62	59.8	70	70	70.5	69.3	71.2	71.1
	2 p.m.	28.738	85.4	73.8	83.8	81.7	77	69.3	68.1	64.8	62.2	60	88	75	84	71.8	86	72
	9 p.m.	28.744	66.1	62	64.1	70.3	72.4	70.7	69.1	65	62.2	60	72.5	75.3	70	72.6	73	74.2
12	7 a.m.	28.826	64.6	58	63	62.8	64	65.3	67	65.1	62.5	60	62	66.7	63.2	67.2	64.2	69.4
	2 p.m.	28.852	81.2	66	78.5	82	76	68	67	65.1	62.8	60.2	89	72.3	86.2	69.8	66.8	
	9 p.m.	28.788	62	57.2	57	66.8	70	70	69.4	65	62.6	60.2	69	73.8	67	71.8	69	73.2
13	7 a.m.	28.738	61	59	63.4	62.2	64	66.6	67	65.2	62.7	60.2	62.2	67.2	64	67.8	64	69.6
	2 p.m.	28.688	87	72	82.3	76.4	71.2	66.7	66.6	65.2	63	60.5	79.5	69	79	67.7	80	68.7
	9 p.m.	28.608	66.1	63	64	66	68.1	67.8	67.8	65	62.9	60.7	66.9	69.6	66.8	69.1	67.7	70.5
14	7 a.m.	28.714	65.2	62.3	64	65	65	66	66.3	65	62.9	60.4	64.2	66.7	65	67	65.2	68
	2 p.m.	28.802	73.4	62	71.6	73.6	71.8	67	66.5	65	63	60.6	80.1	70.8	77.7	68.8	79.4	69.6
	9 p.m.	28.828	58	56	56	63	67.1	68	67.8	64.8	62.8	60.5	64.2	70.6	63.1	69.7	66.2	71.9
15	7 a.m.	28.940	55.2	53	55	64.8	58.5	62.8	64.2	64.7	62.8	60.6	53.6	61.2	56.2	63.6	56.6	64.8
16	7 a.m.	28.730	60.1	56	59.4	60.7	62.8	64.6	65.3	.....	62.8	60.5	60.8	64.4	60.6	65.3	61.8	66.3
	2 p.m.	28.564	61.4	58	58.9	62.1	62.2	63.6	64.1	.....	62.7	60.6	61	63.1	61	63.5	61	64.1
	9 p.m.	28.960	60	54.1	52.3	57.8	58.8	59.9	60.1	.....	62.4	60.5	58.2	63.2	57.8	63.4	58.2	63.1
17	7 a.m.	28.822	58	56	57	59	60.3	61.9	62.8	.....	62.3	60.4	59.3	61.3	59.7	62.3	59.8	62.2
	2 p.m.	28.888	64.8	58.8	63	64.3	63.8	62.3	62.7	.....	62.2	60.6	65.2	63.2	65	63	65.3	62.8
	9 p.m.	28.938	58	53.4	54.2	59.2	62.2	63.2	63.3	.....	62.3	60.3	60.1	64	59.6	64	60	64
18	7 a.m.	29.002	54.2	53.2	54.2	53	55.1	59.3	61	.....	62	60.3	53.2	57.7	55	60	54.4	59.6
	2 p.m.	29.030	68	59	66.4	67.8	65.7	61.4	61.2	.....	62	60.4	70	63.2	68.9	62	69.7	61.8
	9 p.m.	29.054	60	50.1	52	59.1	63	63.5	63.3	.....	62	60.2	61	65.1	60	64.4	61.1	65.1
19	7 a.m.	29.072	50	48.2	49.3	50.7	53.8	59	60.7	.....	61.8	60.4	51	57.3	53.2	59.5	52.7	59.8
	2 p.m.	29.122	77.8	61.5	70.4	72.7	68.1	61.3	61	.....	61.8	60.4	74.4	64.5	70	62.4	75.8	62.5
	9 p.m.	29.100	62.3	53.3	55	61.2	64.6	64.1	64.0	.....	61.5	60.4	62.8	67	62.2	66.1	63.8	67
20	7 a.m.	29.054	56.2	53.1	57.2	54.4	57.2	60	61.6	.....	61.5	60.4	54.9	59.2	57	61.1	56.8	61.6
	2 p.m.	29.028	85	67	77	75	69.4	62.3	61.5	.....	61.5	60.4	79.5	66.5	79.6	78.8	64.2	
	9 p.m.	28.976	68	60.9	64	66.3	67.8	65.8	64.7	.....	61.3	60.2	67.8	69	67	67.4	68.3	68.3
21	7 a.m.	28.916	66	63.1	65	62.8	63.2	63.5	63.8	.....	61.2	60.2	63.4	64.7	63.6	64.8	64.3	65.7
	2 p.m.	28.916	80.9	70.8	73.2	73.4	69.5	64.2	63.9	.....	61.2	60.2	75.3	67.5	74.3	65.8	76	66.3
	9 p.m.	28.860	70	65.5	67.2	67.5	68	66.1	65.4	.....	61.2	60.2	68.5	68.8	68	67.4	69.1	68.4
22	7 a.m.	28.740	84	71	76	74.1	70	64.9	64.7	.....	61.4	60.2	77	68.3	76	66	77.5	67
23	7 a.m.	28.656	67	65	65.5	65.8	66.1	65.7	66	.....	61.7	60.2	66.1	67	61.5	66.8	66.6	67.5
	2 p.m.	28.704	82.5	71.8	75	75.8	72.2	66.8	66.1	.....	61.8	60.2	77.8	70	77.8	68.1	79.5	69
	9 p.m.	28.750	66	64.5	65.5	68.1	69	67.8	67.5	.....	62	60.2	67.8	70	68.2	69	69	70.1

OBSERVATIONS of Ground Temperature—Continued.

MONTH.	Day.	Time of Reading.	Barometer.	Attached Thermom- eter.	Wet bulb Thermom- eter.	Dry bulb Thermom- eter.	Maximum Thermom- eter.	Minimum Thermom- eter.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.								TEMPERATURE OF DIFFERENT SOILS.					
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.	Loam.		Clay.		Sand.	
																		3 inches.	9 inches.	3 inches.	9 inches.	3 inches.	9 inches.
August—(con)	24	7 a.m.	28.800	63.2	61.1	62.3	62.3	62.4	...	63.5	64	65.5	66	66.2	...	62	60.2	64.8	66.5	64.7	66.8	65	69.5
		2 p.m.	28.892	69.5	64.8	66.1	66.1	66.1	...	70	69.5	68.3	65.7	65.6	...	62	60.2	70.7	67.1	70	66.7	71.1	67
		9 p.m.	28.805	65.3	62.4	64.5	68.5	62.4	...	64	66.5	68	67.5	67	...	62	60.2	65.7	68	66	67.8	66.2	67.6
"	25	7 a.m.	29.004	64	61.1	64	64	60.5	...	63.7	63.7	64.6	65	65.2	...	62	60.2	64.2	65.6	64.5	66	64.8	66.4
		2 p.m.	28.980	78	67.2	73.3	78	60.5	...	83.5	75.6	71	65.8	65.4	...	62.1	60.2	79.6	69.8	79.1	67	78.2	67.4
		9 p.m.	29.002	67.5	60.1	62	62	60.5	...	63	66	70.3	67.8	67.8	...	62.4	60.2	68.7	71.2	67.5	69.8	69	70.7
"	26	7 a.m.	28.952	60	60	60	60	49.5	...	61.8	60.2	61.9	64.2	65	...	62.3	60.2	61	63.8	61.7	65	61.8	65.8
		2 p.m.	28.972	85.6	73	81.8	85.6	49.5	...	89.5	81.6	74.5	66.5	65.7	...	62.4	60.2	87.7	71.2	86.4	68.3	83.2	68
		9 p.m.	28.916	73.1	65.1	68.2	68.2	50	...	67	71.4	73.2	70.6	69	...	62.4	60.2	72.5	74	71	71.5	72.3	72.5
"	27	7 a.m.	28.874	63	59.1	59.8	...	...	...	64.3	61	63.2	66	66.4	...	62.4	60.3	61.5	66	63	66.8	62.8	67.7
		2 p.m.	28.918	90	75	86	...	...	...	93.5	85	78.2	68	66.7	...	62.5	60.4	91.5	73.5	90.5	70	86	69.5
		9 p.m.	28.868	77	69	72	86.2	50	...	70.2	74	75.2	72.2	70.1	...	62.5	60.4	75.5	76.5	73	67.3	74.9	74.2
"	28	7 a.m.	28.830	64.4	65	65.2	...	...	...	69.5	64	65.8	67.6	68	...	62.7	60.5	64.5	68	65.8	68.5	65.6	69.5
		2 p.m.	28.824	93	76	88	...	...	...	95.5	85.8	79.2	69.5	68	...	62.8	60.5	89	74.5	86.2	71	86	70.5
		9 p.m.	28.792	69	63	63.4	88.5	61.3	1.280	66	69.4	72	71.3	70.2	...	63	60.5	69.5	73	69.5	71.6	68.5	72.3
"	29	2 p.m.	28.640	93	76	84.7	85	58.5	...	85.5	81	76.8	69.5	67.2	...	63.3	60.8	81.3	74	82.8	71	81.8	70.8
		7 a.m.	28.548	70	67	68	...	...	...	68.7	68	68.9	68.5	68.7	...	63.3	61	68.5	69.9	69	70	69	70.4
		2 p.m.	28.526	71	66	66.7	...	...	...	69.5	69.5	69.9	68.5	68.5	...	63.5	61.2	70.5	70	70.7	69.8	70.8	70
"	30	7 a.m.	28.592	63	60.2	61.2	85	60	.556	61.3	64.1	66.9	67.8	68	...	63.4	61	65.2	68.8	65.7	69.1	65.1	69.2
		2 p.m.	28.652	56	53.3	55	...	...	...	59.4	56.8	60.7	63.8	65.2	...	63.4	61	57.8	63	59.7	65	58	64.7
		9 p.m.	28.742	55	49.7	54	64.2	46.7	...	66.6	56.8	60.8	64.3	64.8	...	63.6	61.1	70	66.7	70.6	67	66.3	
September	1	7 a.m.	29.034	50.2	46.3	49	...	...	...	53.1	51.2	55	60.3	62	...	63.2	61.1	52.6	59.2	54.7	61.8	53	61.2
		2 p.m.	29.142	67.8	54.2	61.8	...	...	...	71.2	68	66.2	61.7	62	...	63.2	61.2	73	63.5	74.8	63.2	73	62.8
		9 p.m.	29.138	55.2	48	50.1	64.7	43.3	...	49.6	56	61	63.3	63.8	...	62.9	61.1	58.4	65.6	59	65	69.2	66.8

2	7 a.m. 2 p.m. 9 p.m.	29,194 28,252 29,232	45.2 76.2 53	44.2 60.8 52.8	46 68.8 54.7	..... ..... 70	43.2	..... ..... .....	52 77 53	47.3 71 58.2	51.9 66.2 62.2	58.6 60.8 61.9	60.4 60.8 62.3	..... ..... .....	62.5 62.7 62	61.1 61.1 61	49.2 73 58.2	51.2 62.5 59.6	59.8 57.5 65.3	52 26.2 60.2	50.7 26.2 59.9
3	7 a.m. 2 p.m. 9 p.m.	29,222 29,238 29,174	53 81 60	52.3 63.7 54	53.3 73 57.2	..... ..... 74.1	36.2	..... ..... .....	55.7 81 56.4	51.7 73.5 60.7	54.7 68 63.7	59.4 61.1 64.1	61 61.4 63.8	..... ..... .....	62 62 61.8	60.7 60.9 60.7	53 73.8 61	58.7 64 65.3	54.8 74 60.7	54.2 175.3 63.1	60.9 63 66.2
4	7 a.m. 2 p.m. 9 p.m.	29,148 29,130 29,150	58.1 80 65	56.4 68.4 60	58.2 76 61	..... ..... 76.1	49.1	..... ..... .....	56.2 82.7 62	55 74.2 64.9	67 68.2 65.4	60.3 62 65	61.3 62 64.2	..... ..... .....	61.8 61.8 61.8	60.4 60.5 60.6	56.3 74.2 65	60 64.7 66.7	57.5 63.3 66.3	57.5 63.3 66.3	62 63.5 66.6
5	7 a.m.	29,118	62	59	61	78.5	56	.....	63.8	59	60.2	62.2	63	.....	61.8	60.7	59.2	62.8	61	63.2	60.6
6	7 a.m. 2 p.m. 9 p.m.	29,146 29,190 29,132	56 87.5 70	55 71.2 62.8	56 81.4 64.3	..... ..... 82.2	53.8	..... ..... .....	60.1 92.8 65.3	56.4 83 70	60.2 75.2 71.9	62.8 65.6 69	63.7 64.4 67.7	..... ..... .....	61.6 62 61.8	60.2 60.8 60.3	57.2 82.8 69	62.2 81.8 68.8	58.4 66.5 69.5	63.2 81.2 68.8	58.6 81.2 69.7
7	7 a.m. 2 p.m. 9 p.m.	29,130 29,168 29,080	59 89.2 72	57.3 73.6 64	58.2 84 57.8	..... ..... 84.2	48	..... ..... .....	63.5 91.5 65.8	59 83.2 69.6	62.2 77 71.5	64.2 67.4 69.7	65 65.7 68.8	..... ..... .....	61.9 62.2 61	60.3 60.8 60.5	59.2 84.5 68.9	68.8 82.8 71.6	60.4 83.8 68	64.6 82.8 69.6	60.5 82.8 70.4
8	7 a.m. 2 p.m. 9 p.m.	29,024 29,014 28,920	62 87.2 74	60.6 72.2 68.2	61.2 83.8 70.2	..... ..... 85	.....	..... ..... .....	66.3 90 71.2	61.2 80.7 73.6	63 76 74	65.4 67.8 70.6	66 56.2 69	..... ..... .....	62.2 62.3 62.4	60.4 60.7 60.7	61.2 82.6 73	62.2 65.4 63.2	62.4 65.1 63.4	62.4 65.1 63.4	62.4 65.1 63.4
9	7 a.m. 2 p.m. 9 p.m.	28,910 28,856 28,772	63.2 62.8 61.2	62 61 60	62 61.1 60	..... ..... 71	58.6	..... ..... .....	63.8 65.8 62.1	65.3 65.8 68.7	66.8 66.4 65	67.3 66.3 66.8	57.2 66.4 66.2	..... ..... .....	62.4 62.8 62.8	60.7 60.7 60.7	65.2 65.2 63.2	67.8 65.1 63.4	65.1 65.1 63.4	67.8 65.1 63.4	68.4 65.1 63.4
10	7 a.m. 2 p.m. 9 p.m.	28,632 28,656 28,725	66 76.7 64	64.8 74 57.6	65.2 74 61.8	..... ..... 77.2	57.6	..... ..... .....	64.8 72.6 59.3	63.6 71 63	64 69.8 65.8	64.4 65.8 66.4	65 65.4 66.2	..... ..... .....	62.8 63 62.8	60.8 61 60.8	63.6 71.8 63.2	64.2 68.1 67.2	64 71.8 63.5	64.8 68.1 63.5	64.8 68.1 63.5
11	7 a.m. 2 p.m. 9 p.m.	28,846 28,142 28,684	51.7 67.6 59.2	44.8 55.3 53.4	50.3 64 57.5	..... ..... 65.6	45	..... ..... .....	55 71.3 45	62.3 65.8 58.1	56.3 64.7 61.8	61.8 62.1 63.4	63.1 62.6 63.8	..... ..... .....	62.8 62.9 62.8	60.8 61 60.7	52.5 69 58.5	64.8 67.8 63.6	62.5 63 59.5	62.5 63 59.5	62.5 63 59.5
12	7 a.m.	28,616	53	51	51.6	62.2	50.9	.....	52.6	55.2	58.4	61.3	61.7	.....	62.7	61.8	55.2	60.2	61.5	55.8	61.8
12	7 a.m. 2 p.m. 9 p.m.	28,632 28,704 28,632	44.2 60 51.4	40.2 48.8 52.8	42.6 55.6 52.6	..... ..... 57	.....	..... ..... .....	45.6 61.3 45.2	46.5 58.3 51.3	50.8 58 56.1	56.8 57 57.5	58.5 58 59.8	..... ..... .....	61.8 61.8 61.6	60.4 60.6 60.4	56.4 61 60.5	53.8 56.8 57.8	48.5 57.6 60.4	56.6 60.6 59.3	47.8 60.6 60.1
14	7 a.m. 2 p.m. 9 p.m.	28,706 28,804 28,882	51.4 65 51	50.3 54.2 45	50.2 62 47	..... ..... 62.9	38.4	..... ..... .....	51.6 65.5 46.7	51 62.8 52.7	53.5 61.5 57	56.8 58.2 59.2	58 58.3 59.8	..... ..... .....	61 60.8 60.8	60 60.2 59.8	51.2 65.3 54.8	52.5 59.3 59.4	56.6 65.9 54.6	51.8 58.8 60	56.2 57.9 60

OBSERVATIONS of Ground Temperature—Continued.

Month.	Day.	Time of Reading.	Barometer.	Attached Thermometer.	Wet bulb Thermometer.	Dry bulb Thermometer.	Maximum Thermometer.	Minimum Thermometer.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.							TEMPERATURE OF DIFFERENT SOILS.						
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.	Loam.	Clay.		Sand.		
																			3 inches.	9 inches.	3 inches.	9 inches.	3 inches.
September	15	7 a.m.	28.982	47.3	47	49.4	.....	.....	.....	49	45	48.6	55	56.7	.....	60.2	59.7	46.7	52.4	48.2	55.3	47	54.6
	15	2 p.m.	28.911	67	55.2	60.4	.....	.....	.....	64.4	61	59.2	56.4	56.8	.....	60.2	59.7	61.7	56.8	59.2	56.7	55.7	55.7
	15	9 p.m.	28.876	56	51	55	62.3	35	.....	54.8	53.2	57	57.8	58	.....	60	59.4	55.2	57.3	55	57.6	56.7	57.4
"	16	7 a.m.	28.801	61.6	61.2	61.2	.....	.....	.....	63.2	60	59.2	58	58.2	.....	59.7	59.2	60.2	58.2	60.4	58	60.3	57.8
	16	2 p.m.	28.792	78	69.2	72.2	.....	.....	.....	72.8	69.5	66.1	60.3	59.7	.....	59.7	59.2	69.7	63	69.1	60.7	70.2	60.8
	16	9 p.m.	28.721	66.1	62.7	63	75.8	54	2.58	62.8	63	63.8	62.2	61.5	.....	59.8	59.2	63.4	63.8	63.5	62.6	63.8	63.4
"	17	7 a.m.	28.846	61.2	63.2	65.6	.....	.....	.....	64.3	62	64	59	59.3	.....	59.9	59	59	59	60.1	58.7	60	58.5
	17	2 p.m.	28.966	66.2	58	62.1	.....	.....	.....	66.2	65.8	64.6	61.8	61.5	.....	59.8	59.2	67.2	63.5	66.2	62.3	66.2	62.7
	17	9 p.m.	29.020	51.5	50	51	64.8	50	2.08	51	56	59.8	62	62	.....	59.8	59	57.6	62.2	57.8	62.2	57.7	63
"	18	7 a.m.	29.168	47.2	45	46	.....	.....	.....	51	47.8	51.3	57	58.8	.....	60	58.7	49.1	55.3	51.4	57.2	49.3	57.2
	18	2 p.m.	29.200	67	55.4	62.2	.....	.....	.....	69.2	64	61.4	58.2	58.3	.....	59.8	59	66.8	59.2	66.4	59	64.1	57.8
	18	9 p.m.	29.074	56.2	50.2	52	63.7	39	.....	52	56.2	59.2	60.4	60.3	.....	59.8	58.8	57.2	61	59.6	60.8	57.4	60.7
"	19	7 a.m.	28.788	51.2	53.4	53.4	67.3	48.8	2.04	54.8	54.6	55.8	57.7	58.7	.....	59.8	58.8	55	57	55.2	58	54.8	57.8
	20	7 a.m.	28.960	41.6	42	43	.....	.....	.....	47.8	45.8	50	55	56.4	.....	59.2	58.6	47.6	53.6	49	55.4	47.6	54.1
		20	2 p.m.	28.950	57	50.8	54.2	57.8	56.2	56	55.5	56.2	59.4	58.6	57	56	57.5	55.6	56	54.8
20		9 p.m.	28.958	50	47	49	56.2	38	.....	48.8	50.8	54	56.2	57	.....	59	58.5	51.7	55.6	52.3	56.3	51.7	58
"	21	7 a.m.	29.012	41.2	38.5	39.5	.....	.....	.....	46.7	42	46.2	42.3	54.2	.....	58.8	58.1	43.3	50.1	46	52.5	43.2	51.4
	21	2 p.m.	29.010	62.5	51	57.4	.....	.....	.....	66.8	60.7	57.4	54	54.3	.....	58.8	58.2	61.8	64	61.9	64	58.6	62.8
	21	9 p.m.	29.012	48	43.2	46.6	57.8	31.5	.....	46.2	50.5	54.2	55.8	56.2	.....	58.5	58.2	51.8	55.9	52.2	56.1	51.1	56.3
"	22	7 a.m.	28.990	47	44.9	46.4	.....	.....	.....	47.5	47.8	50	53.2	54.7	.....	58	58	48.7	52	48	53.2	48.4	62.8
	22	2 p.m.	28.968	61	52.5	55.2	.....	.....	.....	58.4	58	57.5	55	55.2	.....	58	57.8	57	55.4	56.5	56	54.5	57
	22	9 p.m.	28.788	47.8	53.5	53	61	42	.....	44.1	49.3	53.3	51.3	56.4	.....	58.6	58.1	51.6	58.1	51.2	59.3	51.3	55.4

23	7 a.m.	28.894	53.2	59.8	51.8	.....	.....	.....	54.2	53.2	54	55	55.5	.....	57.8	57.5	53.8	53.4	54	54.8	53.6	54.8
	2 p.m.	28.964	68.1	39	62.2	.....	.....	.....	71.4	68.7	59.8	55.8	55.9	.....	57.8	57.5	63	55.6	62	55.3	.....	55.3
	9 p.m.	29.020	55.7	52	52	66.6	43	.....	55.8	58.2	60	59.1	58.5	.....	57.8	57.5	57	9.60	58	59	58.5	59.4
24	7 a.m.	29.040	49	47.2	47.2	.....	.....	.....	51	52	54.7	56.8	57.7	.....	57.8	57.5	52	56.6	63.5	57	52.7	57.1
	2 p.m.	29.084	76	63	68.2	.....	.....	.....	74.7	68.2	63	51.9	57.5	.....	57.8	57.4	67	6.59	66.4	57.7	66.5	57.7
	9 p.m.	29.026	62	53.2	55	70.5	43.2	.....	58.2	61.2	63	62.1	60.6	.....	57.8	59.3	59	6.61	4.59	3.60	5.9	4.60.3
25	7 a.m.	26.048	60.8	60	60.2	.....	.....	.....	61	58.7	58.8	58.8	59	.....	57.8	57.5	58	6.59	1.59	58.7	58.7	59.1
	2 p.m.	28.932	82.6	71.2	81	.....	.....	.....	77.3	71.5	67.6	60.8	59.7	.....	58	57.5	73	63.5	71.8	61	74.8	62.2
	9 p.m.	28.848	70	65	67	81.2	59	.....	63.5	63.8	64.6	62.8	62	.....	58	57.2	64.3	64.8	64.4	63.1	64.8	64
26	7 a.m.	28.682	65	61.2	63.2	70.1	62.3	200	62.3	62.3	62.6	61.7	61.2	.....	58.1	57.2	63	63	63	62.1	63	62.5
27	7 a.m.	28.744	55	53.1	53.6	.....	.....	.....	56.8	56.5	58.2	60	60.3	.....	58.5	57.1	57	60.4	58.2	60.4	57.8	60.8
	2 p.m.	28.720	66.8	58.8	61	.....	.....	.....	66.3	63.3	62	60.1	60.1	.....	58.6	57.4	61	62.2	60.4	62.8	60.7	60.7
	9 p.m.	28.628	57	55.5	55.9	61	51	.....	57.5	58.7	60.5	60.6	60.7	.....	58.8	57.5	58	60.9	58.8	60.6	59	60.1
28	7 a.m.	28.748	57	55	56	.....	.....	.....	57.2	58	59.1	59.7	60	.....	58.8	57.5	58	2.59	58.7	59.8	58.7	60
	2 p.m.	28.786	55.5	50	54.1	.....	.....	.....	56.2	58.8	59	59.8	59.8	.....	58.9	57.6	59	4.60	59.5	60	59.5	60
	9 p.m.	28.800	48.8	45.5	46.6	60.7	45.2	.....	48	52.3	55.9	58.4	59.1	.....	58.9	57.8	53	8.58	54.7	53.8	54	58.9
29	7 a.m.	28.810	40	38	38.5	.....	.....	.....	42.3	43.5	49	54.8	56.9	.....	58.9	57.8	46	53.2	48.2	55.3	46	55
	2 p.m.	28.820	59.4	49	56.9	.....	.....	.....	59.4	56.8	56.1	55	55.8	.....	58.5	57.6	59	55	58.2	55.5	56	54.5
	9 p.m.	28.770	47.6	42	42.5	56.9	35	.....	42.8	46.8	52.8	56	56.9	.....	58.7	57.6	50	55.2	51	56.1	49.1	56
30	7 a.m.	28.632	46.3	43.5	45.1	.....	.....	.....	47.1	44	47.3	52.3	54.1	.....	58.1	57.2	45	7.50	8.47	3.53	46	52.2
	2 p.m.	28.528	67	55.5	62	.....	.....	.....	63.1	58	56	53.8	54.1	.....	58.2	57.7	58	7.54	8.58	53.8	57.5	53
	9 p.m.	28.538	43.1	40.5	41.7	62.7	35	.070	45.2	50.7	54	55.3	55.8	.....	58	57.5	50	8.55	51	56.2	51.2	56.1
1	7 a.m.	28.686	36.6	35	36	.....	.....	.....	39.8	41.2	46.3	51.8	53.7	.....	57.8	57.4	42	5.49	8.44	2.52	43	151.8
	2 p.m.	28.818	45	39.2	42.4	.....	.....	.....	51	48.7	50.8	51.7	52.8	.....	57.6	57.2	50	7.56	1.50	57	5.49	56.8
	9 p.m.	28.896	37.2	55.5	55.5	47.2	34.1	.....	37.8	42	47	51.2	52.8	.....	57.2	57	43	3.49	2.44	9.51	2.40	8.51
2	7 a.m.	28.998	44.2	37.9	37.8	.....	.....	.....	39.8	41.6	46.1	50.7	52.6	.....	56.9	56.9	41	8.49	6.43	8.51	6.42	9.51.5
	2 p.m.	29.084	51.8	43.3	48.4	.....	.....	.....	51.5	49	49	49.5	50.8	.....	56.8	56.8	49	8.48	49.2	49.1	48.8	48.8
	9 p.m.	29.116	40	35.3	36	50.8	34.8	.....	36.6	42.1	47	50.8	51.6	.....	56.4	56.5	41	1.50	42.8	50.7	42.2	50.3
3	7 a.m.	.....	.....	34	34	57.9	26	.....	37.8	37.2	41.6	47.3	49.1	.....	55.7	56.4	36	46.7	37.8	48.2	36.8	48
4	7 a.m.	28.854	46	45	46	54.6	33	.....	45.2	44.2	46.1	48.8	50	.....	55.2	55.8	44	2.48	1.45	49	44.5	48
	2 p.m.	28.842	53	54.5	54.5	.....	.....	.....	51.5	50.8	49.8	48.8	50	.....	55.2	55.6	42	2.49	50.8	49.2	51	49.2
	9 p.m.	28.926	52	50.2	51	54.6	33	.096	51	50.6	51.4	51	51.3	.....	54.1	55.6	50	3.50	1.50	3.60	2.50	2.50.4
5	7 a.m.	29.034	49.4	48	48.3	.....	.....	.....	49.5	48.8	50.6	51.2	51.8	.....	54.7	55.5	48	50.8	49.5	50.9	49.2	50.9
	2 p.m.	29.060	60	51	55	.....	.....	.....	59.5	56.2	54.8	52.2	52.2	.....	54.8	55.2	55	8.51	4.55	2.55	8.51	6
	9 p.m.	29.030	47.8	42.5	43	55.1	41.5	.....	44	49	52.2	53	53.2	.....	54.8	55	47	2.52	8.48	8.52	8.48	4.53.8

OBSERVATIONS of Ground Temperature.—Continued.

Month.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.										TEMPERATURE OF DIFFERENT SOILS.												
	Day.	Time of Reading.	Barometer.	Attached Thermom-eter.	Wet bulb Thermom-eter.	Dry bulb Thermom-eter.	Maximum Thermom-eter.	Minimum Thermom-eter.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.						TEMPERATURE OF DIFFERENT SOILS.							
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.	Loam.	Clay.	Sand.	9 inches.	3 inches.	9 inches.
October—Con.	6	7 a.m. 2 p.m. 9 p.m.	29.020 29.024 28.990	39.2 37.2 47	39.3 63 47.4		64.1 33			42.9 69.7 57.8	44 62.6 42	46.2 58.2 55	49.8 52.1 54.8	51.2 52 54.6		54.5 54.8 54	55 54.7 55.1	42.249.1 43.250.7 51.254.2	43.250.2 51.353.2 51.353.2	50.42 3.61 52.1	50.42 3.61 52.1	50.42 3.61 52.1	50.42 3.61 52.1
"	7	7 a.m. 2 p.m. 9 p.m.	29.000 29.018 29.016	40 36.5 51	38.1 67 51.3		67 34.9			41.2 70.6 48.2	42.3 64 53.6	46.6 59.7 55.4	50.8 53.2 55.3	52.2 52.8 55.1		54.4 54.7 54.8	54.7 54.8 54.8	41.451 43.260.8 52.455.2	43.260.8 51.363.1 52.455.2	41.951.4 3.63.1 53.8	41.951.4 3.63.1 53.8	41.951.4 3.63.1 53.8	41.951.4 3.63.1 53.8
"	8	7 a.m. 2 p.m. 9 p.m.	29.004 29.038 29.016	42 75.4 60	40.4 63 55.5	40.6 72 57.3				44.3 69.7 53	44.5 63.2 55	48.1 59.8 56.5	52 54 56	52.8 53.7 55.5		54.6 54.8 55	54.7 54.8 54.8	43.852 45.652.5 55.66.1	43.852 45.652.5 55.66.1	44.152.2 52.7 55.8	44.152.2 52.7 55.8	44.152.2 52.7 55.8	44.152.2 52.7 55.8
"	9	7 a.m. 2 p.m. 9 p.m.	29.048 29.068 29.044	52 77.2 60.1	52 64.5 54.1	53 72.3 55.1				48 72.2 52.4	48.2 65.4 56	50.2 61 57.7	53.7 59.7 57.1	53.7 54.1 56.8		54.7 54.8 54.8	54.6 54.8 54.8	48.753 48.654 55.958	48.753 48.654 55.958	47.953.2 53.5 56.9	47.953.2 53.5 56.9	47.953.2 53.5 56.9	47.953.2 53.5 56.9
"	10	7 a.m.	29.044	46.7	44	44	74	42		44.8	47.6	51.2	54	54.8		55	54.6	47.654.5 48.1	47.654.5 48.1	48.1	48.1	48.1	48.1
"	11	7 a.m. 2 p.m. 9 p.m.	29.026 28.872 28.980	47.7 71.2 62	45 63.1 56.5	45.2 71 58				49 69.7 55.4	47.8 62 57.1	51.2 56.1 58.7	54.4 56.1 57.8	55.2 55.7 57		55.1 55.2 55.6	54.7 54.8 54.9	47.855.1 54.856.2 57.258.5	47.855.1 54.856.2 57.258.5	48.455.2 56.958 57.8	48.455.2 56.958 57.8	48.455.2 56.958 57.8	48.455.2 56.958 57.8
"	12	7 a.m. 2 p.m. 9 p.m.	28.908 28.872 28.904	55.0 71.2 67.2	53.2 62.2 56	54 67 55.5				54 67.5 54.2	53.2 62.2 56.1	54.4 59.5 57.2	55.4 56.3 57.4	56 56.1 57.4		55.6 55.7 55.7	54.9 55 55	53.655.8 53.456.4 56.356.4	53.655.8 53.456.4 56.356.4	53.553.5 56.863 57.8	53.553.5 56.863 57.8	53.553.5 56.863 57.8	53.553.5 56.863 57.8
"	13	7 a.m. 2 p.m. 9 p.m.	28.894 28.866 28.794	55 62 53.1	52.1 55 51	52 55.9 51				54.8 61.2 53.2	55.6 58.6 59.4	56.5 58.6 57.2	56.7 58.6 57.2	56.9 57.2		55.8 55.7 55.7	54.9 55.2 55.2	55.657.1 55.258.5 59.259.8	55.657.1 55.258.5 59.259.8	55.757 56.569.7 56.256.3	55.757 56.569.7 56.256.3	55.757 56.569.7 56.256.3	55.757 56.569.7 56.256.3

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OBSERVATIONS of Ground Temperature.—*Concluded.*

MONTH.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.										TEMPERATURE OF DIFFERENT SOILS.												
	Day.	Time of Reading.	Barometer.	Attached Thermom-eter.	Wet bulb Thermom-eter.	Dry bulb Thermom-eter.	Maximum Thermom-eter.	Minimum Thermom-eter.	Amount of Rain in Inches.	TEMPERATURE OF SOILS VARYING FROM 1 TO 48 INCHES IN DEPTH.							TEMPERATURE OF DIFFERENT SOILS.						
										1 inch.	3 inches.	6 inches.	9 inches.	12 inches.	24 inches.	36 inches.	48 inches.	Loam.	Clay.	Sand.			
October—C.n....	26	7 a.m.	29.258	29.8	28	29.1	.....	.....	.....	33.8	36.5	40.8	45.2	47	.....	51.5	51.6	36	43.8	35.4	44.4	36	45.2
		2 p.m.	29.248	37.4	32.8	34	.....	.....	.....	42.5	42	43	44.2	45.8	.....	51.4	51.7	40	42.4	41.2	43.8	41	43.8
		9 p.m.	29.194	34	32	33.1	39.8	34.2	.....	35.2	37.6	41.2	44.7	45.9	.....	51.4	51.6	36.8	42.8	36	42.3	37.3	44.1
"	27	7 a.m.	29.040	34	33.8	34	.....	.....	.....	35.8	37	39.8	43.1	44.8	.....	51.2	51.5	36.4	41.2	36.8	41.9	36.5	42.6
		2 p.m.	28.862	39.2	38.4	38.6	.....	.....	.....	40.7	39.8	41.8	43.4	44.2	.....	50.9	51.5	38.2	41.4	39.8	42.1	39.8	42.5
		9 p.m.	28.806	41.2	40.4	41.2	41.2	30.9	.....	41.3	41.2	42.8	44	44.8	.....	50.8	51.3	40.7	42.2	41.1	42.8	41	43
"	28	7 a.m.	28.736	41.5	41.0	41	.....	.....	.....	42.2	42	43.3	44.2	45.1	.....	50.6	51.3	41.8	42.7	42	43.2	41.8	43.5
		2 p.m.	28.744	49	44	45.2	.....	.....	.....	49	47.2	46.8	45	45.8	.....	50.6	51.2	46.9	44	47.2	44	47.8	43.1
		9 p.m.	28.763	41.2	42.3	42.7	45.8	39.7	.128	42.5	42.7	43.9	44.3	45.2	.....	50.2	51	40.9	42.2	41.3	43	41.3	42.8
"	29	7 a.m.	28.828	43.6	43.2	43.2	.....	.....	.....	44.2	44.2	45.1	45.8	46.4	.....	50	50.8	43.9	44.8	43.8	44.8	43.7	45
		2 p.m.	28.862	50.3	47.2	49.5	.....	.....	.....	56	49.5	49	46.8	47	.....	50	50.6	48.8	45.9	44.7	49.4	45.8	
		9 p.m.	28.932	47	45	47	51.2	39.7	.020	46.7	46.8	47.7	47.6	47.8	.....	49.8	50.6	46.2	46.8	46.3	46.6	46.9	46.8
"	30	7 a.m.	29.010	40.8	40.1	40.9	.....	.....	.....	40.8	41.8	44.7	46.6	47.4	.....	49.8	50.6	41.1	45.8	41.6	45.8	40.5	46
		2 p.m.	29.036	62.2	50.6	59	.....	.....	.....	60	55.2	52.4	47.5	47.5	.....	50	50.7	53	46.8	53.7	46.2	54.8	46.6
		9 p.m.	29.038	46.2	38.9	41	60	37.5	.....	47.2	47.4	47.9	48.6	48.8	.....	50	50.4	47.6	48.2	47.7	48.5	48.4	48.7
"	31	7 a.m.	28.972	40	37.2	38	62.4	36.2	.....	36.4	37.2	41	45.2	46.6	.....	49.8	50.1	36.8	43.8	37	44.5	36.8	44.8

OBSERVATIONS AND ANALYSES OF DRAINAGE.

The rain gauge and six lysimeters were first in operation during the summer of 1884. For fuller information consult the reports of 1883 and 1884. In 1885, owing to the illness and death of Dr. Hare, then in charge of the Chemical Department, accurate and detailed observations and analyses were not preserved.

There are six lysimeters, as follows:—

- I. Permanent Pasture, on soil of experimental field.
- II. Bare Fallow or Fall Wheat on soil of experimental field.
- III. Fall Wheat or Bare Fallow “ “ “
- IV. Four years rotation, on loam.
- V. “ “ on clay.
- VI. “ “ on sand.

Each lysimeter covers 1-10,000 of an acre, is three feet deep, and contains the soil preserved in its natural position. In the accompanying tables the drainage is given calculated to pounds per acre.

The following is the description of the soil of Nos. I, II and III:—

“The surface soil is a sandy loam eight inches in depth—the humus being abundant. The sub-soil consists of three distinct layers: first is a firm clay ten inches deep, having a reddish tinge and a slight sprinkling of gravel; second is a gravel loam fourteen inches deep, the gravel varying from one inch to the one-tenth of an inch in diameter; third a layer of pure building sand four inches deep.”

No. I. was manured in 1884 at the rate of fourteen tons of farm-yard manure to the acre.

Nos. II. and III. have a two years' rotation, fall wheat and bare fallow, manured fourteen tons to the acre before sowing every other year.

The rotation in Nos. IV., V. and VI. is roots (manure), barley, clover, spring wheat. This is the third year; manure was fourteen tons to the acre, applied to the turnips—none since.

LYSIMETER.	Month.	Rainfall, lbs. per acre.	Drainage, lbs. per acre.	Solids in Drainage, lbs. per acre,	LBS. OF NITROGEN PER ACRE.				Chlorine, lbs. per acre.
					As Ammonia.	As Organic Matter.	As Nitrates and Nitrites.	Total.	
I. Permanent Pasture	May ..	290,870	121,220	1,922	.0039	.0290	.6011	.6340	.0002
II. Bare Fallow	“ ..	290,870	171,600	2,705	.0184	.0269	.9002	.9455	.0004
III. Fall Wheat	“ ..	290,870	62,920	1,031	.0047	.0083	.1404	.1534	.0002
IV. Clover on Loam	“ ..	290,870	18,304	306	.0235	.0100	.0612	.0947	.0002
V. “ Clay	“ ..	290,870	32,780	696	.0042	.0097	.2343	.2482	.0002
VI. “ Sand	“ ..	290,870	94,050	569	.0016	.0387	.7117	.7520	.0001
Total, 6 acres	“ ..	1,745,220	500,874	7,229	.0563	.1226	2.6489	2.8278	.0013
None ran	June ..	536,172	.....	.....	.....	.....	.....	.....	.....
“	July ..	177,061	.....	.....	.....	.....	.....	.....	.....
II. Bare Fallow	Aug ..	974,857	31,900	561	.0026	.0118	.0684	.0828	.0002
II. Bare Fallow	Sept ..	430,751	44,220	814	.0022	.0026	.1195	.1243	.0001
II. Bare Fallow	Oct ..	535,038	151,360	2,866	.0062	.0105	.4861	.5028	.0002
II. Bare Fallow	Nov ..	583,781	190,300	3,930	.....	.....	2.4300	2.4300	.....
III. Fall Wheat	“ ..	583,781	12,584	205	.....	.....	.3505	.3505	.....
V. Clover on Clay	“ ..	583,781	28,160	375	.....	.....	.3817	.3817	.....
Total for	“ ..	3,502,686	281,044	4,510	.....	.....	.....	3.1622	.....
Total for 6 acres for 7 months .....	.....	21,171,180	959,398	15,980	.....	.....	.....	6.6999	.0018

NOTES.

II. Bare Fallow.—On September 25th of this year, this plot was manured with farmyard manure, at the rate of 14 tons to the acre; it was ploughed under on same day. On October 2nd, wheat (Rodger), was sown.

III. Fall Wheat.—The wheat was cut about July 27th; the stubble ploughed under about August 7th; no manure was added. In September and October, therefore, it was a fallow, the name, Fall wheat, being in above table, still applied to No. III.

IV., V. and VI. Clover on Loam, Clay and Sand.—These were turned under October 2nd; no manure added; they were fallow, therefore, during October and November.

The clay on No. V., is a little sandy.

In 1884, the first year of operation, drainage water was received from only two lysimeters, viz., from II., the bare fallow, and V., the clay. For complete analysis see Report of 1884, pp. 101-3.

The total drainage for all the lysimeters during this year, was 4.53 per cent. of the total rainfall, somewhat below the average.

For comparison or contrast, I append a few observations taken elsewhere:—

Inches of Rainfall.	DRAINAGE.		Time.	Observer.	—
	Inches.	Per cent.			
26.6	11.3	42.5	1836-43.	Dickinson.	Grass in Sandy Loam.
13.93	10.39	74.5	October to March.	"	"
12.67	0.90	7.1	April to September.	"	"
26 to 28	6.5 to 7	25	.....	Dalton.	
.....	.....	27	.....	Graeves.	
31.45	14.06	44.7	1871-1880.	Lawes and Gilbert.	
26	10.1	39	.....	Maurice.	
41	12.3	20	.....	Risler.	
28	5.6	30	.....	Gasparin.	
26.7	5.14	20	May to Sept., 1877.	Stockbridge.	
45.34	6.76	14.9	1876 to 1879.	Sturtevant.	

The rainfall at the Experimental Farm during the seven months, 1886, (May to December), was 15.574 inches and the drainage 0.71 inches (4.53 per cent.), both rainfall and drainage being quite low.

The total drainage, solids and nitrogen loss, were made up as follows:—

—	Drainage.	Solids.	Nitrogen.
	Lbs.		
I. Permanent Pasture	121,220	1,922	.6340
II. Bare Fallow	589,380	10,876	4.0864
III. Fall Wheat	75,504	1,238	.5089
IV. Clover on Loam	18,304	306	.0947
V. " Clay	60,940	1,071	.6299
VI. " Sand	94,050	569	.7620
Total from six acres for seven months	959,398	15,980	6.6999

The amount of Nitrogen received by an acre of soil through the rain varies between five and seven pounds *per annum*, six being about the average.

The small amount of Nitrogen washed out of the various soils, in comparison with some results from other stations, can easily be accounted for by the small percentage of total drainage. This summer it amounted to 1-10 of what it has reached in some seasons in England. The above results, however, are available for comparison one with another.

POST GRADUATE COURSE.

The work of the third year is, of course, in a formative condition and will gradually develop into more perfect form. Since November 1st, the time of its commencement, the

class have made good progress. They have continued the work of the second year. The work during the first term has consisted of the following:—

(a) **Laboratory Work**:—The preparation of Hydrogen, Oxygen, Nitrogen, Ozone and Sulphuretted Hydrogen gases, and experimenting with the same; a review and fuller treatment of the subject of Qualitative Analysis; including Blow-pipe Analysis, Volumetric Analysis; experiments with the following soils—clay, sand, loam, marl, humus, vegetable mold—to determine their chemical and physical properties.

(b) **Theoretical Work**:—The work in Agricultural Chemistry has been confined principally to the writing of theses on subjects prescribed. Each week a thesis is handed in by one of the members of the class: this is read by myself, criticized, and then handed to the others for reading and for making notes. The subjects of the first term have been "Humus," "Green Manuring," "Fallowing," "Bones." In addition I have prescribed technical books, reports and pamphlets for reading and study. The attention and interest so far manifested, justify the inception of this work and promise success for the future. Though it has thrown much additional work upon the Chemical Department, I hope to see it continued and developed still farther. After the New Year we shall commence the Quantitative Analysis of soils, water, dairy products, etc.

NEEDS.

A chemist, while thankful for past favours, is always anxious for further improvement. You will therefore please permit me to refer to the pressing needs of the Chemical Department.

At present the lecture room, the laboratory of the college, the laboratory of the Experimental Department, and the private room of the chemist are all in one, a room poorly lighted, with but few conveniences, and situated in immediate conjunction to the private dwelling of yourself, and also to the sleeping and dining rooms of the student. I think that you and every one else of sound thinking will readily admit the following: That a laboratory where vapours and gases, unwholesome and poisonous, are constantly being liberated, should not be situated beside or near inhabited rooms: that a chemist should not be compelled to lecture to a class in the laboratory where analytical work is proceeding all the time; that where we attempt to give the complete and practical course mapped out in our chemical curriculum, we should have equipment and conveniences commensurate with the work. Further progress is barred unless we have better equipment; we are enabled to continue the analysis of water, manures and dairy products through this winter because of the additional conveniences added to the College laboratory. By having both departments in the same room, I have been able to conduct analyses and oversee the practical work of the third year without much inconvenience; but we are working against great difficulties, and our field is limited because of the lack of accommodation, convenience of arrangement, and scanty apparatus. The laboratory of the only Agricultural College in the Province of Ontario should certainly be as complete as that of the Agricultural Colleges of the neighbouring states, and we should not be thrown too much in the shade by the accommodation and equipment of the laboratory about to be established at the Dominion station near Ottawa. I trust, sir, that the Government will give speedy realization to what all must certainly feel is a great necessity, viz., a new, commodious and well equipped laboratory.

The retention of Mr. Zavitz as assistant in the Experimental Department has proved wise; work has developed sufficient to demand his services. Since his appointment last summer all of his time allotted to the laboratory has been fully occupied. He has shown himself careful and reliable.

Trusting that I have not trespassed too far upon the pages of the Report and that this record will prove satisfactory,

I remain your obedient servant.

C. C. JAMES,
Professor of Chemistry.

PART IV

REPORT OF THE
PROFESSOR OF VETERINARY SCIENCE.

GUELPH, December 31st, 1886.

To the President of Ontario Agricultural College :

SIR,—The duty of writing my Annual Report for the year just ended is a comparatively pleasant one, as the health of the live stock on the Experimental Farm has been, on the whole, so good that I have no very serious losses to give an account of.

One circumstance that, of course, has had an influence in lessening the loss, is the reduction in the number of stock kept, on account of the housing accommodation being limited, the result of the fire.

Amongst the sheep, I have to report the death of an imported ewe, which occurred in the early spring. She died pretty suddenly after developing marked signs of sickness, as the first intimation I had of anything being wrong was the announcement of her death, which I found on *post mortem* to be due to exactly the same condition in connection with the liver as described in my report of last year, and from which two ewes succumbed.

Two black mares, that are worked regularly on the farm, have been very unfortunate with their foals for two years in succession. The first year they were bred to an English cart horse, and foaled without any difficulty, but the foals were weak, the muscles of their limbs seeming undeveloped and flaccid, and incapable of enabling the bones to support the body, consequently they could not seek the teat, and although constantly attended, gained no strength and within a few days died. The milk given by the mares was translucent and watery, and evidently lacking in that thickness and richness characteristic of the first milk, and which gives it its laxative action on the bowels of the newly-born foal, which action is so important in establishing a healthy condition. The dilligent use of rectal injections, castor oil, and syrup of rhubarb, were futile in bringing about this healthy action in these cases. This spring these mares dropped foals to a Suffolk Punch, and with exactly the same result, which is, of itself, some evidence in favour of the mares' responsibility for their lack of success. Last year both mares were worked steadily up to the time they foaled, and appeared in fair condition—not over fleshy—but this year, after the team was broken by the one that foaled first, the other one had a full month at grass without work, which altered condition seemed to confer no benefit. It should, however, be mentioned that the one that foaled last went about a month over the usual eleven months' term. They were certainly not fleshy this year.

Of the other accidental troubles to which my attention has been called during the year, such as coughs, colds, touches of colic, indigestion, injuries and lameness, perhaps the most interesting case was one of Eversion of the Vagina that occurred in a Devon cow. The trouble I so designated, but in reality there was a complication of disorders, one of the most prominent symptoms of which was the appearance of a congested or somewhat inflamed mass of the walls of the passage to the womb (vagina) between its

lips, and often being extended as a pendulous mass the size of a man's head. This was more particularly the case when the cow was recumbent. An important feature of her trouble, and one that first presented itself, was a difficulty in the use of the hind legs, shown by a stiffness in moving them, and the exercise of a great effort in rising from the recumbent position, several attempts being often made before she was successful in getting on her feet. The difficulty in using her hind legs was noticed fully a month before she calved, and gradually became more pronounced until that act was satisfactorily accomplished, and then rapidly disappeared, she soon gaining her accustomed freedom of movement. When first attacked she occupied a loose box, but on account of the chronic displacement of the vaginal walls, it was deemed necessary to tie her in a stall, in order that she could be elevated behind, which was accomplished to the extent of a foot by packing in long horse-manure. This raising of the hind parts has a tendency to encourage the gravitation of the displaced walls into their normal position. No doubt the almost constant lying, induced by the difficulty of getting up and standing, and the relaxed state of the tissues, due to the imperfect supply of nerve power, combined to cause the displacement described. The paralytic symptoms were in no measure controlled or relieved by the administration of general and nervine tonics in the form of drachm doses of each of the following constituents, viz: powdered nux vomica, gentian and sulphate of iron, mixed and given in crushed oats three times a day for two weeks. But treatment of the more immediate source of danger in connection with the displaced vagina was decidedly satisfactory. After thorough cleansing of the passage by syringing with lukewarm water, and the subsequent disinfection with a two per cent. solution of carbolic acid, an astringent and anodyne ointment was freely applied twice a day to the swollen and congested walls; this had the effect of allaying the irritation, and causing their contraction into something like a normal condition, and averting what was anxiously feared would be a sequel to delivery, viz, expulsion of the womb and vagina. She, however, calved with ease, and gave birth to a strong, healthy calf, the delivery of which was followed by complete restoration to health.

Two imported Shorthorn cows, "Mademoiselle" and "Princess Royal," have been barren for a length of time. They were put to the bull regularly for some months, but as they did not hold, I was asked to examine them and see if I could determine the cause. Upon passing my hand in as far as the mouth of the womb I found, in both cases, that the neck of this organ was so much contracted that the canal through it was completely closed up, so much so as to render it impervious to even a slender body like a knitting needle. There was no doubt that this state of affairs was of itself quite sufficient to account for sterility.

Many breeders labour under the erroneous impression that the penis really enters the mouth of the womb during copulation, but it only passes into the vagina, and a much smaller opening than that necessary to admit the penis even of the bull, suffices to render conception possible in any female. If the canal in the neck of the womb in a cow admits of communication between the vagina and the womb, even although it may be only a third of an inch in diameter, or even less, conception can take place, as the living particles in the semen, commonly called the seed, have the power of working themselves along for a considerable distance, and do not require a large opening for their passage in travelling to meet the egg of the female, contact having to take place before conception can occur.

In these cases of complete occlusion, unless the neck has become thickened and hardened from an abnormal growth of tissue, due in some cases to injury at the time of giving birth, it is generally possible to bring about dilatation.

It should be understood that the neck, which is cylindrical in form, and from four to six inches in length, is made up of tissue that has the power of expansion and contraction. The former quality is amply demonstrated by the passage of the calf through it at birth-giving, and the latter by its speedy return to its usual calibre after the completion of that act. But in some cases normal contraction is exaggerated, thus bringing about the condition under consideration. Although no easy task, still it is quite possible in many cases to open up the occluded canal and thus restore normal relationships in so far as this is concerned. The best method of doing this is to tie the

cow up tightly with a halter, or use the "bull-dogs" in her nose. Place her against a wall, with an attendant on the other side to keep her there and hold the tail out of the way. Passing a rope over the loins round under the flanks, and tying it tightly tends to prevent kicking and straining. The operator should warm his hand and arm with warm water, and smear them with oil or cream preparatory to passing them into the vagina. After passing the hand as far into the vagina as possible, at the end of it will be found a projecting ring, in the centre of which a depression may be felt, which should continue in the form of a canal into the womb in a natural state of affairs. But as before stated the canal is sometimes closed up, nothing more than a depression being detectable. In order to open up communication nothing is better than the finger. Apply moderately firm pressure with it on the depression for a time, moving it in a screw-like manner. The index finger answers best at first, but it may be relieved occasionally by the middle one. It is a very laborious undertaking and two hours may be occupied in accomplishing it. Although a slow process the operator can realize that he is making progress by the finger passing in a little deeper, until there seems to be no barrier between the end of the finger and the cavity of the womb. It is well, however, to continue the dilatation until two fingers will pass in. The manipulations necessarily cause some irritation and straining, so that it is desirable to smear plenty of an oily substance, which should contain one part of carbolic acid in it to ten of oil, repeatedly on the hand.

The process of dilating should be carried out the day before the cow is likely to be in season, as the manipulations lead to straining, which is opposed to the retention of the semen after service.

We are very hopeful that one of the cows—Princess Royal—is in calf, as she has gone over twelve weeks since the last service. Mademoiselle has also passed several terms, but as she has shown irregularity in coming in heat before, we are not so sanguine regarding her. Both of these cows have a fleshy appearance, but they are not highly fed, having received no grain since they arrived at the Experimental Farm.

SPAYING.

The first work that has been done of an experimental character in the Veterinary department of this College was begun during the past summer. The question of the usefulness or uselessness of the removal of the ovaries from heifers or cows, with the object of getting a better return in the shape of either beef or milk, has not yet been satisfactorily settled in this country; and every now and then articles are written in not only agricultural, but other papers, commending the course as a good one, and expressing surprise that it is not more generally adopted. It has been tried in the different countries of Europe, but the opinions regarding it differ, so that it is impossible to glean a correct estimate of its value. Some of the advantages claimed for Spaying are the following:

- 1st. It increases the quantity and improves the quality of milk.
- 2nd. It lengthens the period of lactation to nearly twice the usual one.
- 3rd. It lessens the losses of the dairyman from the diseases and accidents incidental to parturitions.
- 4th. Spayed animals more rapidly accumulate flesh, and which is of high quality.

If the results of the operation were so generally favourable as above indicated, there is every likelihood that it would be more generally practised. There is very little doubt, however, about the beneficial influence it has upon fattening females, but as the number of heifers fattened is comparatively few, it is of limited application in this direction. It is further claimed that dairy cows, after having milked for a couple of years, or until it is not profitable to keep them for that purpose any longer, are then fit for the block, having accumulated flesh so rapidly while milking. Before we can settle this question satisfactorily, it will be necessary to carry out a number of observations systematically. So far we have only made a start, but think it well to announce that something is being done. It was not considered advisable to buy a number of cows and heifers all at once, and keep them for the sole object of testing this matter, but from

time to time, as cattle are required to carry out other experiments, some of them can be subjected to spaying, and its effects noted.

Professor Robertson procured a number of cows last spring, and will very likely have a number more this spring for experimental purposes, which will afford a valuable opportunity for this purpose. We, however, purchased two cows and two heifers in August to begin with, and largely for the purpose of observing the immediate effects of the operation.

One of the cows—a spotted one—had had her fourth calf about seven weeks previously, while the other—a red cow—had dropped her fifth one some three months before. These animals looked like Canadians, improved by one cross of Shorthorn. The spotted cow was a good milker, but the red one was only middling, and unfortunately before the operation had some sores on the bag, which caused the loss of one quarter, and subsequently all the quarters of her bag became blind, one by one. The two heifers were about thirteen months old, one of which was a pretty common one, while the other showed a moderate amount of breeding.

I operated on the cows by a method suggested by a French veterinarian named Charlier. Instead of making any external opening, the hand is passed in to near the mouth of the the womb, and an incision made in the roof of the vagina large enough to admit two fingers, which are passed through it, and the ovaries reached for one by one and drawn into the passage (vagina), and there removed by a suitable instrument which completes the operation. The only means of restraint resorted to were tying the cows up short and applying a rope tightly tied round the loins and abdomen.

The passage is so small in heifers of thirteen months that it will not admit of the practice of the method already described, so that an opening has to be made in the side through the abdominal muscles. The left side is most convenient, for being occupied by the stomach, the bowels do not get in the way of the necessary manipulations. I find it necessary to throw in operating through the side, as the subject is apt to throw herself while the operation is going on.

All four animals survived the operation and its effects; the heifers particularly continued to feed and showed no indisposition whatever, the wounds healing in a very short time, with a marked absence of discharge. The heifers did not lose in weight nor in healthfulness of appearance. They received no extra attention except being kept in a box stall for a couple of days as the flies were bad; after that they took their chance with the rest of the herd. The cows did not do so well and lost considerable in weight, but I cannot charge the operation as accountable for all the loss. They were put on an acre of pasture and kept there, which had been eaten so close before they were put on it, that it did not appear to me to be capable of affording sufficient food. They did not show any marked evidence of ill health as they appeared to be ready for food, and their temperature was never more than one degree above normal.

It is an operation that requires practice, and I dare say if I had been more expert in its performance, it might have made some difference in the result. It is the first time I had ever either seen or performed the operation.

The percentage of losses from the vaginal operation is given by some operators as very small, not exceeding two per cent., while that through the side in adult cows is estimated at fifteen per cent. Certainly the vaginal operation is much preferable for cows or heifers over two years of age; but I am of the opinion that very few deaths need occur in young heifers, and that it is better to perform the operation pretty early in life—say at five or six months old.

In herds of fattening cattle in which there are heifers coming in heat, there is no doubt there would be much benefit derivable from Spaying, not only to the animal altered, but to the rest of the herd, on account of the general uneasiness produced by a rutting heifer.

I must defer further comments on this subject until next year, when we hope to have something more definite and elaborate to submit.

Respectfully submitted,

F. O. GRENSIDE, V. S.

PART V.

REPORT OF THE PHYSICIAN.

GUELPH, 31st December, 1886.

*To the Honourable A. M. Ross,
Commissioner of Agriculture :*

SIR,—I have the honor of presenting to you my Eleventh Annual Report.

We have had nothing of an unusual character in the way of sickness or accident during the year just closing.

We had one case of diphtheria, that of a servant girl, but by promptly removing her to her home the disease was prevented from spreading to others.

I beg leave to call your attention to one very important matter regarding the sanitary condition of the College. Owing to the storage of large quantities of vegetables in the cellars, through which the steam pipes must pass to reach other parts of the building, the cellars become so heated that decomposition takes place very rapidly, and at times the odour of decomposing vegetable matter is unpleasantly perceptible throughout the building. To remove this difficulty I would strongly urge the necessity of providing a proper root-house apart from the College.

I have the honor to be, Sir,

Your obedient servant,

E. W. McGUIRE.

PART VI.

REPORT OF THE PROFESSOR OF AGRICULTURE, FARM MANAGER, AND EXPERIMENTAL SUPERINTENDENT.

ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM,

31st December, 1886

To the Honourable A. M. Ross,

Commissioner of Agriculture :

SIR,—I have the honour to report upon the Farm, Live Stock, Experimental and Mechanical Departments for the year 1886, being the twelfth of the Institution and eleventh of my time.

As introductory, I beg to submit some thoughts with reference to what we are learning from the farmers of the Province through the agency of their Institutes. Having, with my colleagues, assisted at these meetings during the past two years, we are necessarily in a position to distribute some points of practical importance, bearing directly upon our profession and the agriculture of the country.

A primary fact is the responsive spirit of our people to anything well organized, giving variety, and of a thoroughly practical stamp. It is good evidence of how much may be done by any Government in drawing out the self-culture of a class that is naturally isolated, self-reliant and retiring. This is no case of state aid really, as the \$25 contributed to each Institute is so small and upon such conditions as draw out many times more from the very men who previously did not, and may be would not now, so organize. It is also evidence of an appreciation by the farm mind of what their country expects them to do towards building up a new nation. The numerical pre-eminence, and as being holders of our estate value, with very much of the comforts of others in their hands, should long ago have made farmers national leaders. The demand for organization has become so full that it is impossible to overtake help to each from the College—even with the three separate pairs of Professors now arranged for 1887. No doubt the increasing interest thus exhibited says something decidedly favourable of the assistance thus allowed by the Government, and to remove any view of newness being a drawer of men in this particular walk of life, we have the important fact that all the already established Institutes are asking for a renewal of this help.

But the striking feature of every piece of the work has been the high merit of discussions by farmers. The average character of the papers read by them, with some marked exceptions, has not been so strong and far-reaching as many expected. I am saying this upon the testimony of others, and not the Faculty of the College, for though as yet somewhat diffident in preparing papers, there has been, in our opinion, no want of merit in those given. Thoughts through pen and paper are not yet the easiest for men constantly at outdoor labour, and hence the superior nature of the discussions. It has been very refreshing indeed to witness the invariable objection at first to taking part at these meetings by many, until drawn out through a simple question as to his own practice in a particular operation—a mere “yes” or “no” at first, and then to find the man roused and overflowing with the best of crisp facts in response to another who had struck a corresponding note—either too high or too low in his belief. We have thus had material equal to any Legislature and superior to most debating societies, because their hand was on the plough, and they are ploughmen.

At the same time it seems curious that farmers have not as yet of themselves been able to keep up the vigor and freshness of clubs and societies. This is true of the average of all countries and may be more so here, where by reason of the necessity of manual labour on their part, the leisure and desire for mental work are wanting. At the same time Europeans are saying that Canadian and American associations among farmers for mutual benefit is a much more prominent thing than with them; this is true to the extent of realising the immediate or the near prospect of an increased dollar, but not so very prominent when mental culture is the crop in question. However, we must rejoice rather than complain of anything in connection with the Ontario Farmers' Institutes. Danger, if anywhere, lies in want of variety and interest, should the contributing element be withdrawn—mind, not money I mean.

I have been particularly struck by the absence of grumbling at these meetings, and I also speak of those held in 1887. Since 1871 we have branched and are now fruiting into the arena of competitive nations—the budding was previous to that. So much solid history in a few years has been the harvest of agricultural improvements and development. The honor belongs to the plough and the people.

In closing, therefore, the twentieth Dominion year we are met by the oddity of absence of “grumbling” in our farm life. Grumbling, 'tis said, is the right of the farmer, if not his characteristic, which, it is not worth while to enquire, for it could be shown that both are but the natural accompaniment of his position as universal caterer. But discontent is a more serious thing than grumbling—the latter is more often a habit, the noise whereof is worse than the bite. We have had some large enough discontent amongst farmers more than once in the period named, and the fact of its evaporation is good evidence of the quiescent rural mind, in comparison with other professions.

The interesting question for December 1886 is—Why has Canada so much contentment, with low prices for most agricultural products? That she is so, solidly, is undoubted. The press, the Parliamentary aspirant, the banks and railways, the Tariff, manufactories, our Bureau of Industries, and the universal discontent himself, says so. But what of the cause or causes?

The argument of long use and wont begetting indifference does not apply to a young and vigorous nation, and even the spirit of the people would not brook the deadness of even one decade; still migratory in our disposition, we would assuredly have made for new pastures. If we hold any indigenous trait, it is not by any means that of submission to successive “bad times” in any business—nor, allow me to add, are we characteristically steady in public policy and national devotion. Nor can it be said that abundance of wealth has fattened us to the extent of engendering a sleepy indifference. This feature is prominent enough in some districts of other lands, but our physical conditions, in conjunction with comparative newness, and the love of change, precludes any such ground to place the contentment in question.

Neither are the prospects so bright as to account for our problem. Few things are so wordly certain as the long, low prices of grain and flesh in coming years, and the newer fields of the dairy cannot be called highly inviting at present. What, then, is it?

I am of opinion that the contentment of the Canadian farmer is the result of several things. One is the having measured himself with the world and found his place and his superiority. I mean by this that we are now tied with all the appliances of civilization, and all the civilization itself, to make and maintain a market, and that we have just learned how much we can and cannot do in the great competition—the satisfaction being our ability to do a good deal of everything well. Another reason is the distinctly better average cropping. This—not the result yet of much better management—but of decidedly more reliable physical conditions. Many of us have wandered, of late, in search of the ideal home, and most would like to return again.

Then, also, we are gradually, though slowly, settling down to a fixed rural economy—erratic as we be, no doubt. This is much the result of realising the steadiness for any branch of the profession, and that unwholesome speculations live but a day, to be nipped by the common sense of latitude 43° and upwards.

Our contentment, then, is the being able to live well on what we produce, and to conserve “for better, for worse.”

II.—THE FARM.

It will be interesting to give an abstract of the principal operations undertaken—some finished and others still in progress—to make the farm what it should be.

Tree Clearing.

In Fields 3, 4, 6, 12, 14, 15, 16, forty-four acres have been cleared of trees and underbrush, some spots thick brush, and others scant second growth. The greater part of the work was performed by students. We have just finished the stumping of Field 12 and the hillside of No. 4. This kind of reclamation will be completed on Field 18, and the swamp between 16 and 21, which extend to about twenty-five acres.

Drainage.

Every field of the farm, twenty-one in number, has been wholly or partly underdrained with tile, most of the mains six-inch and all the lateral with three and four inch, according to circumstances. Depths have varied from two to four feet, and the distance apart not closer than fifty feet, where systematic work was necessary. A great wash from adjacent land compelled us to use two sixes and one four across the farm, through Fields 12, 10, 2, 3 and 4. We have also had to work up some of our outlets for nearly a quarter of a mile through other properties at considerable expense. The natural drainage of the farm is from east to west.

Stoning and Levelling.

In Fields 1, 2, 3, 4 and 13 especially a large amount of labour has been expended in levelling large open ditches, filling swamp holes and old gravel pits. Many hundred tons of stones have been removed from Fields 3, 4, 6, 15, 16, 18 and 19, both in the form of old accumulated hillocks, fast boulders, and fence-side deposits; some of these, but not much, have yet to be undertaken.

Road-making.

Not much of this has yet been done; part of the centre lane, in neighbourhood of the farm buildings, and northward to Field 16, was blocked out with centre tabling and sidewalks, and the formerly impassable track through the swamp between 16 and 21 has

been made roughly servicable for farm work, but otherwise no finished road-making has been undertaken. By desire of the Commissioner, we are now about to begin a systematic grading and gravelling of the lane in question, so as to secure a uniform piece of engineering the whole length of the farm—nearly one and one-half mile. For this I have concluded to adopt the following specification, and am making levels accordingly so as to get into some progress next season.

A centre of eighteen feet will be boxed and gravelled, the sidewalks of twelve feet each will be levelled and laid down to grass, at the same time that a variety of the best shade trees will be planted thirty feet apart. It is thought best to plant these shades close to fence in place of the inside of walk, so as to avoid trouble with live stock going from fields to buildings daily, as, with the very best of protection, damage is unavoidable, and the fence with the necessary V form of protection of course gives much less chance of trouble, and ensures greater progress even by reason of soil and moisture than is possible near the waterway. A good deal of road-making will also be immediately required beside the new farm buildings.

Fencing.

We have to date erected five miles of fencing, principally in sub-dividing fields, and as it would be unnecessary detail to speak of each, the following abstract will suffice:—

Post and board	5,082 yards.
Post and rail	1,980 "
Wire	2,640 "
Dyke	110 "
	<hr/>
	9,812

2. THE NEW FARM BUILDINGS.

1. These are situated on the old experimental plots, butting on the centre lane of the farm and running with the roadway that forms the back or northern access to the College grounds. All the buildings and courts cover an area of fully one acre.

2. They have a south-eastern aspect, with drainage to the north, and stand upon a very stiff deep clay loam.

3. The general plan is a square, having the barn, with the cattle under, on the west, the sheep on the north, the bulls on the east, and the horses on the south side.

4. The nature of the ground necessitated an excavation of seven feet on the west corner of the barn, so that the term "bank" may be partially applied to the whole, though the ground slope leaves a clear wall half upon the barn one way, and at a right angle down along the horses the other way.

5. The barn is 130 feet by 70, the horse range 150 by 30, the sheep 150 by 30, and the bull shed 40 by 80 feet. There is a thirty-feet outside court for the sheep the whole length of their building, inside the square, and thus facing the south, and the bulls have separate outside courts on each side in connection with their separate inside boxes.

6. The barn is built upon twelve feet stone walls, twenty-four inches thick, so that the cattle have a clear overhead ten feet. Entrances to barn are on the ends, and having taken advantage of the seven feet bank, the south access rises six in a length of thirty feet from the roadway; the north entrance will be practically an egress only, as owing to the depth caused by the ground slope, we have had to make a sharp-curved, and somewhat steep roadway, keeping close to the building as shown on plan.

7. The barn proper is entirely of pine timber, with twenty feet posts, and twenty-two feet between bents, which are thirty-eight feet in height, thus giving six division son

each side of the fifteen-foot roadway, usually called mows, but in this case without division fences. The total height of barn from floor to apex is forty-five feet and to top of cupola sixty-five feet, so that from the cattle floor the building measures seventy-seven feet in height. The barn floor has two detached granaries, with feed-room between, corresponding to that below, and where straw-cutter and grinder are placed. There are also fourteen straw and turnip shoots, passages to horse and sheep lofts, and twelve doors equally distributed all round, in addition to windows and ventilators.

8. The principal entrance to the cattle is on the angle between barn and horses, where steps descend to level of all the buildings. All the cattle are immediately under the barn and occupy the whole space with the exception of sixteen feet the whole length of the barn on the west side, which is cut off by a fourteen-inch brick wall for root-cellars and feed-room. These cellars are floored with grout and cement, the outside walls being first lined with inch boards, then laid with tar-felt paper, and covered with finished tongue and grooved narrow boards. The feed-room is 21 by 16 feet in centre of building between cellars, having sliding-doors two-thirds of the front upon passage way to cattle-stalls, where a two-ton platform weigh scale is placed. The root pulper stands in feed-room in line between cellar doors, and is driven by belt from engine shaft above. The stair, as access from barn, breaks upon the feed-room from north side. The accommodation is for sixty-seven cattle in seven single rows, as follows:—

For large cattle tied up	34 head.
For small cattle tied up	14 "
Calves in pens	11 "
Loose boxes	8 "
	<hr/>
	67

These boxes are on both ends, the calves between two rows of cows with a door on each side, and all the rows cross the building, or edge on the feed-room. Watering troughs are attached to the feeding troughs in every row, the floor grouted and cemented, and box stalls laid with cedar blocks. Feed passages are six feet apart between water troughs, and main passages eight feet in width. Double stalls, 7 feet 4 inches, centre to centre; single, 5 feet; half the boxes are 20 by 17, and half 15 by 11 feet; calf pens, 7 by 8. The space behind the cattle is six feet, a door opens into manure court at each row of cattle, and passages lead to horses and sheep. Light is admitted by thirteen windows in addition to those over the six doors to court.

9. The horse range has stalls for fourteen single and one double, with three boxes. Three of the stalls are six feet, all others 5½ feet in width, boxes 12 by 12; feeding passage seven feet, and the space behind horses is eleven feet. The floor is cedar block pavement. At the end adjoining barn is a small room for extra harness, that for daily use being in a press upon the wall behind each team. The feed-room, 30 by 10 feet, will hold cut hay and oats. As it is proposed to use cut hay only, there are no racks, and the mangers are divided for hay and oats. Straw is got by four shoots behind horses, and there are corresponding openings in front should long hay be wanted from the loft. Double doors, with an eight feet passage between, divides the building—the one to the manure court and the other from roadway, with two ordinary doors to said court, and two on end near bull shed. Water is got from three hydrants inside on the head passage, and light by eighteen windows. All the stalls and boxes are fitted with Telford's pillars and top rails. The horse loft is arranged to be filled with hay by a horse hay-fork.

10. The sheep range is divided into five inside and six outside compartments—dry, solid soil inside and gravel outside. A five-feet passage runs throughout, with hay-racks upon sub-divisions opposite shoots from loft; water is supplied by three hydrants. There is a wool-room, grain bin, separate lambing pens, and pens for each of the stock

rams. Eight-foot doors open into the special court, which is fenced from the large manure court by a four-foot stone and lime wall.

11. The bull shed is a separate building, 40 by 80 feet, having a ten-foot centre passage, with six boxes on each side, 14 by 14 feet, and one for straw. Each box has an outside fenced yard of 14 by 14 feet. Overhead is for hay, straw and grain.

12. The yard enclosed by the four ranges just described is surrounded by an eight-foot causewayed sidewalk, excepting on the sheep side, which is taken up by a special court for them. The manure from all classes of animals is taken immediately into the large court, in centre of which are two-cemented brick tanks—one for the liquid from stables, the other for rainfall from buildings. Any over accumulation of mixed liquid from the manure is taken into the first tank, and both tanks have an overflow with the open ditch north of the buildings. This manure court is laid with rough broken stones, and blinded to an average of four inches with sharp gravel and cinders. Many other items could be enumerated, such as galvanized iron shingles, horse stable walls inlaid with brick, ventilators all over, rope and pulley covers for all trap openings overhead, three coats of paint everywhere outside, a 17 horse-power portable engine, with cable rope for a separate house fifty feet distant, driving straw-cutter, root pulper, grain grinder, and threshing machine as required in the barn and feed-room.

My opinion of these new buildings is, that with the exception of a few things, they are the most complete of their kind. I say of their kind, for I do not believe in having \$20,000 worth of cattle in *one compartment under a barn*. I am satisfied that a system of concentrated isolation is best for the holder of a large valuable herd of cattle, but I can follow the object of the Government in choosing what is looked upon as something that can be copied, on a larger or smaller scale by our own breeders and farmers.

We have certainly got a very fine *suite* of farm buildings—creditable to the Institution and worthy of the Province.

3. REPORT OF FARM FOREMAN.

To Professor William Brown :

SIR,—In submitting my annual report of the Farm and Live Stock Department, permit me to say that during the past year the Institution has in those branches fully sustained its high reputation. I have been engaged since my last report, among other duties, in giving instruction to the students in class and field, on live stock and farming. In class we deal two hours each day with theory of farm work and the raising and feeding of live stock. Practical illustrations are frequently given on the latter subject. The class subjects embrace—store cattle, how to select them ; how to judge fat cattle ; method of feeding ; breeds of swine, and the attention necessary in the management of them ; management of sheep, cows, calves, etc. ; how to prepare land for seeding ; quantities of seed to be sown, etc. In the field, practical instruction is given in ploughing, hand-sowing, mowing by hand, etc. The students have displayed praiseworthy aptitude in all these subjects. I would call your attention to the condition of Field No. 12. When I forwarded my last report only half of that field had been drained. I am pleased to be able to say that since then the whole field has been thoroughly under-drained. But the outlet is not sufficient to carry off the superfluous water. By enlarging the outlet (say to a 6 and 4-tile drain) the condition of this field would be greatly improved. In Field No. 9, in which was a crop of turnips, we this year tested the cheapness of the two methods of taking up the roots. We topped three acres by hand, and when delivered in the cellar cost \$29.94 ; while those topped with the hoe and harrowed out and delivered as above cost \$23.35.

The following is the result of the field cropping for the past year:—

No. 1 Field.—Nineteen acres ; hay, yield $1\frac{1}{2}$ tons per acre.

No. 2 Field.—Twenty acres ; seventeen acres pasture, remaining three acres form the gardens of the Mechanical Foreman and Shepherd.

No. 3 Field.—Seventeen acres ; summer fallow.

No. 4 Field.—Twenty acres ; uncultivated and bush.

No. 5 Field.—Twenty acres ; golden vine peas, yield 35 bushels per acre.

No. 6 Field.—Twenty acres ; sown with white Australian and Egyptian oats ; yield 50 bushels per acre.

No. 7 Field.—Seventeen acres ; fall wheat ; Rodger and Bonnell varieties, yield 24 bushels per acre.

No. 8 Field.—Twenty acres ; Mensury barley ; yield 40 bushels per acre.

No. 9 Field.—Twenty acres ; one acre, white Belgium carrots, yield 450 bushels ; $4\frac{1}{2}$ acres, mangolds, yield 795 bushels per acre ; five acres, large Rose potatoes, yield 170 bushels per acre ; $9\frac{1}{2}$ acres, turnips, yield 700 bushels per acre.

No. 10 Field.—Twenty acres ; eight acres, under barley and green fodder, as follows : three acres Mensury barley, 25 bushels per acre ; four acres green corn, 20 tons per acre ; one acre of vetches and oats, yield 6 tons per acre. The balance of this field is occupied by the Creamery Buildings and a small fruit orchard.

No. 11 Field.—Twenty-three acres ; hay, yield $2\frac{1}{2}$ tons per acre.

No. 12 Field.—Uncultivated.

No. 13 Field.—Nineteen and a-half acres ; $9\frac{1}{2}$ acres under spring wheat—red and white Fife. This was badly rusted and was a poor sample ; it has not been thrashed yet, so it is impossible to give the yield ; ten acres of black barley, yield 60 bushels per acre.

No. 14 Field.—Twenty-four acres ; seven acres sown with Egyptian oats, badly rusted, yield 35 bushels per acre ; balance of field used for experimental plots.

No. 15 Field.—Twenty acres ; permanent pasture.

No. 16 Field.—Twenty-five acres ; hay, yield $1\frac{1}{2}$ tons per acre.

No. 17 Field.—Twenty acres ; sixteen acres hay, yield $1\frac{1}{2}$ tons per acre. Four acres of this field is under cultivation as a vineyard.

No. 18 Field.—Thirteen acres ; hay, yield $1\frac{1}{2}$ tons per acre.

No. 19 Field.—Thirty acres ; hay, yield $1\frac{1}{2}$ tons per acre.

No. 20 Field.—Uncultivated.

No. 21 Field.—Twelve acres ; four acres of white Fife spring wheat, rusted, not thrashed yet ; eight acres of Mar's spring wheat, also rusted, not thrashed yet.

INVENTORY AND VALUATION OF LIVE STOCK AND IMPLEMENTS ON HAND DECEMBER
31st, 1886.

HORSES :		\$	c.	\$	c.
8	working horses on farm	1,435	00		
2	instruction and experiment horses	275	00		
					1,710 00
CATTLE :					
1	Short Horn bull	2,500	00		
3	" cows	2,050	00		
					4,550 00
1	Hereford bull	2,600	00		
2	" cows	1,060	00		
					3,660 00
1	Polled Angus bull	2,000	00		
3	" cows	2,900	00		
					4,900 00
1	Galloway bull	600	00		
2	" cows	700	00		
					1,300 00
1	Devon bull	325	00		
1	" cow	300	00		
					625 00

CATTLE—Continued:

	\$	c.	\$	c.
1 Ayrshire bull	300	00		
2 " cows	500	00		
			800	00
1 Guernsey bull	350	00		
1 " cow	275	00		
			625	00
1 Jersey bull	325	00		
2 " cows	550	00		
			875	00
1 Holstein bull	1,000	00		
2 " cows	400	00		
			1,400	00
1 West Highland bull	200	00		
			200	00
20 Grade cows	899	00		
3 " yearlings	52	00		
1 " heifer calf	20	00		
12 feeding cattle	421	00		
1 steer calf	20	00		
			1,412	00

SHEEP:

1 Leicester ram	30	00		
4 " ewes	206	64		
3 " ram lambs	30	00		
			266	64
2 Cotswold rams	285	00		
9 " ewes	190	00		
1 ram lamb	10	00		
1 ewe lamb	10	00		
			495	00
1 Lincoln ram	160	00		
3 " ewes	180	00		
1 " ewe lamb	10	00		
			350	00
1 Cheviot ram	60	00		
2 " ewes	36	00		
1 " ram lamb	5	00		
1 " ewe lamb	5	00		
			106	00
1 Hampshire ram	200	00		
2 " ewes	160	00		
1 " ram lamb	10	00		
1 " ewe lamb	10	00		
			380	00
2 Oxford Down rams	250	00		
10 " ewes	480	00		
1 " ram lamb	10	00		
3 " ewe lamb	30	00		
			770	00
1 South Down ram	270	00		
5 " ewes	260	00		
1 " ram lamb	10	00		
2 " ewe lamb	20	00		
			560	00

SHEEP—Continued :

	\$	c.	\$	c.
1 Highland ram	60	00		
1 " ewe	18	00		
			78	00
2 Shropshire rams	520	00		
7 " ewes	245	00		
4 " ram lambs	40	00		
4 " ewe lambs	40	00		
			845	00
2 Merino ewes	25	00		
1 " ewe lamb	8	00		
			33	00

SWINE :

1 Mid York sow	80	00		
2 Berk boars	60	00		
			140	00
			26,080	64

IMPLEMENTS :

Valuation of farm implements, per inventory	5,130	00
	\$31,210	64

P. J. Woods.

III—THE LIVE STOCK.

The following is detailed account of the cost of producing thoroughbred cattle and sheep in Ontario—an abstract of which was given in No. 1 Bulletin, issued in May last :—

Allow me to say that the great majority of farmers take strong exception to the prices obtained for individuals of certain breeds—characterizing them as fanciful, unsound, temporary, and often false. They look upon the owners of such herds and flocks as pure speculators, who use every possible means to overvalue their property and beget an unhealthy position for them on the public market. To the average Canadian agricultural mind there is nothing in cattle life that need be more than \$150, and in sheep not over \$20 per head. A good deal of this is true, and much of it unreasonable. Every profession is subject to what may be termed unnatural development, and hence to a somewhat just suspicion on the part of those who admire steady progress. It is for the purpose of removing any misconception as to the actual value or cost of an animal that I make these notes. We find few farming matters so roughly understood as that of the cost of producing a thoroughbred yearling bull or heifer, or a shearling ram and ewe. This is not only the case on the part of the purchaser, but even those old in years as breeders cannot show how, and cannot place and explain the debit and credit of what they are disposing of every year.

'The Position of the Question' in Ontario.

The cost of production in this branch of our profession is really very much more serious to us than to the Americans, because of our physical conditions, our smaller numbers, and their keenness. What will always give us the advantage is the comparative immunity from disease and the peculiarly favourable climate that has already told so well in upholding vigorous animal life. It is thought by some, however, that the cost of production must necessarily be more in consequence of our compulsory six months' housing of all live stock, and hence of the use of more high feeding—so called it may be—as against the more natural and equally effective pasture and green fodders of the right

kinds. Then, also, we have hitherto been getting prices from the States that possibly have ruled higher than we are likely to secure again on an average; for extension of breeding there, and even here, will tend to over supply in some particular lines. Otherwise, no doubt, we will have increasing demand, particularly in view of Dairying and Ranching. But this demand may not keep up the prices of the past, for the very simple reason that the average farmer—who is the sound source of all such demand—will not give as much, is less particular about individual animals, and has no reputation at stake, as in the case of special breeding. It therefore stands as a matter of unusual importance at this day to ascertain exactly the cost of production, and place ourselves amongst competitors and and on a sound basis with our own farmers.

The Importer vs. The Home Breeder.

There are no more unreasonable jealousies than those existing between the direct importer and the home breeder. These do exist; for no commoner expressions at exhibitions and elsewhere than—"It is all very well for these wealthy men to import;" "We have no chance against them;" "It is not fair to home products." And now, in fact, some of our larger exhibitions are actually making separate classes for these men, in response to the complaints long made by the home breeder. In all this, due credit is not accorded to men who, at great risks, keep up the standard of our herds and flocks by frequent systematic importations. We are not complaining of the distinction now being inaugurated at exhibitions, but of the unreasonable criticisms anent importers. It has to be admitted, however, that the average judge of this country is not yet able to throw off the influence of a new importation when in the ring with home bred animals. There is no other way of accounting for this than that of want of confidence, and the feeling to "hedge" upon the known or unknown of the new comer. Of course we have had some exceptions to this rule in judging. Importers deserve special encouragement, for in many cases the profits are not so special under the circumstances, as we shall soon find out.

Show Herds and Flocks vs. Others.

Here also we have ground of complaint between parties. All countries have exhibition parasites—the unflinching competitors under any circumstances, who year by year prepare a few gems and make them pay directly. Our regular breeders do not take this field often, but keep to the more legitimate sale of their stock through a few purposely spoiled specimens. But in this they are also severely criticised by the ordinary farmer. Our average man is not thinking enough, or if he be so, is not yet liberal enough to see the value, to himself and such others, of knowing what the male source at least can do in the way they require his progeny to act. The high condition of a bull and ram is really a more important factor to the purchaser of their "get" than indeed it often is to the owners of the sires. Some good breeders never send an animal to the show yard, but it is only the very tops of the profession who can disregard such a source of advertisement in these keen competitive times. The cost of production is affected largely by the show yard results, and this is the excuse for this touch of the subject.

The Increasing Importance of Pedigree.

We are enquiring into the cost of producing certain animals as if it were a new or unknown thing, and at the same time our country is possibly on the eve of a rebellion upon what goes more than half-way to make that cost. This is not the place at present to discuss the position of the "Dominion Short Horn Herd Book," but this may be said, that in our Canadian future, if everything is thoroughly done, this book will materially lessen the cost of production, relatively to prices got.

A good few of our leading breeders and agricultural thinkers do not, I respectfully submit, understand just what pedigree is. The common idea of a short pedigree being comparatively valueless to a long one, for example, is theoretically right, but not so in real truth. What originated Herd Books was of course the desiring to know what had

been and was being done in the changes and improvements amongst certain animals, and hence the farther we get from the original source of such work the more danger there is of errors and of impositions. When Bates and J. Booth followed the Collins, and others also followed them, their cattle pedigrees were short; but how valuable and much less subject to errors they were! Why is it we would all like to tie our herds with the short pedigrees of the eighteenth century? So then the value of a pedigree is only partly because of its source, and very much indeed, now more than ever, of the thoroughness of the breeding and correctness of the records *since then*. In 1822 when Coates began the herd book, the short pedigrees running back say to 1750 were of the highest possible value, and in 1886, or twice the distance since, pedigrees kept up from and through the like blood are certainly no more valuable because of that length of time. The cost of producing an animal being affected by what is called its pedigree, we must be cautious therefore in saying that a short one is always less value than a long one. The most pure-bred animals are those in nature, so that the buffalo are clearly superior to the best families of the Short Horn in that respect, and we must not forget that pedigree should be valued according to breeds and not necessarily by the Short Horn standard with which most people are familiar. If we can only obtain three or four removes in a Hereford or Jersey pedigree there is a greater certainty of their shortness being free from any impurities than in the other example—not only because of shortness being nearer the fountain head, but that, as *original breeds*, the Hereford and Jersey did not require to be looked after in the maintenance of purity, for no outside improvements were ever thought of; this of course has reference to the whole breed and not to particular families.

It is quite true then that the farther we get into the nineteenth century with so many Herd Books in different countries, so many more breeders, and so many more risks from various causes, the increasing length of pedigrees will be the more valuable, according as thoroughness is insisted upon, and short pedigrees may become the most valuable if better management obtains.

The Influence of Reputation on Prices.

Another cause—indirect to some extent as regards the first point—influencing the cost of production and profits, is that of the reputation of the breeder, and the records of his herd. Some men are so reliable, and stand so high in their profession, in all their herd work, that their good name is above the best managed book anywhere. Were all breeders so conditioned, Herd Books might have no place in our economy, and indeed a few good British herds do not patronise the present public registrations. This no doubt is wrong to the public and perhaps themselves, but it is an illustration of the value of reputation, for no ordinary herd could live in such independence. At the same time I am of opinion that a carelessly managed Herd Book is worse than none, and that the average breeder has such a fair amount of conscientious conduct as to command the public respect of his private registrations.

The point of a reputation old in the business has a strong influence in holding up prices where even the pedigree and individual animal merit are not better than those of the beginner, who cannot command two-thirds of the figures. We have several examples of this in Ontario, and in this connection I am justified in noting that the cause of the prominent patronage of the Experimental Farm live stock public sales is not altogether the name of the place, nor animal merit, as the knowing that everything is right.

The Items of Debit and Credit Considered Generally.

It is not such an easy matter to submit, and get everybody to agree, on what should be charged and discharged to any animal's cost of production. Practice varies to some extent, but not so much as to demand attention. The making of a good thoroughbred in Ontario a somewhat uniform process, and while the facts about to be submitted will apply to any first-class breeder in the Province, it will be necessary to work from data largely those of this experimental station.

Abstractly, there are but three things that have to do with the production of stock animals fit for sale and for use when eighteen months old—

1. The particular source of the animal.
2. Its individual merit.
3. Its management.

By source is meant the breed, the special family and pedigree, the stamp of the sire and dam, and whether they are from distant or recent importations. The market value of each of these sub-points (the breed excepted of course) has, I think, never been placed in our live stock study. If there is no good source, there can be no reliability for reproduction; but there is all that man wants in the form of the sire and dam in the majority of cases with very ordinary bred animals, so that we meet at the very outset of our valuation with this apparent anomaly so well known to everybody. But individual merit along with pedigree is the desideratum, and having secured these we have only to rely on management to complete the animal for the best market price. Management implies such judicious liberal treatment—in food, exercise and handling—as shall help the pedigree and form to secure the weight, condition, temper and animal vigour necessary for immediate use to the purchaser. With such explanation I venture to place these abstract points at the following valuation:—

1. Source	60 per cent.
2. Individual merit	30 “
3. Management	10 “
	100

The beginning of the debit of the individual is the sire's service, and the value of this varies according to his cost, and, it may be, his special reputation. From the \$100 given for some particular bull, down to the \$1 that most men would rather give, it may be said that \$5 would be a fair service fee. To check this, take the case of the full use of the bull among his own herd, where the maximum is thirty cows. Let us say \$400 were paid for the bull, and that during the year he was used to all. The interest on his cost is \$50, and the annual maintenance is worth \$50, so that \$100 can be looked upon as the total annual cost of the service of the thirty cows. As, however, there would be on an average twenty-five calves got, the charge per calf stands at \$4. This, remember, is the breeder's own cost, and has nothing to do with what he considers a profit from those who patronize him. All things considered, therefore, \$5 is a reasonable fee, and that for sheep is usually worth \$1. The second item of debit begins when the cow has been relieved of her previous calf, say two months before next calf, when properly the cow's keep must be charged to the coming calf. In order to follow the argument more intelligently, take the following as an example journal:—

Service, 1st July, 1884.

Weaning of previous calf, 1st February, 1885.

Calved 1st April, 1885.

Calf weaned 1st November, 1885.

Calf winter fed six months to 1st May, 1886.

Calf on summer keep until sold in September, 1886.

With service on 1st July, 1884, the weaning of the previous calf takes place about 1st of February, 1885, or two months before the coming of the calf we have to handle.

Then follows the keep of both cow and calf for seven months, from 1st April to 1st November, 1885. From weaning to sale there are nine months' food, care, and risks to be accounted for against the animal ready for disposal in September, 1886, when about eighteen months old.

In the case of cattle particularly, it will be contended by some that allowance ought to be made for manure; and, indeed, sheep properly managed give proportionately more value, if not bulk, of manure than cattle do. In regard to this I have decided to look upon it as part of the profits realized, as to which see special paragraph. Then also in calculating the cost of sheep, I have taken credit for one lamb per ewe only, while one-fourth more at least is usually got, according to kinds and management. This point will also be considered in the profits.

The Original Cost of Different Breeds of Cattle and Sheep.

I mean by this the cost of importations, without which we cannot come to exact figures of cost of production in many Canadian herds and flocks. Allowing for every possible outlay—including British cost, quarantine and home, say to Toronto as a centre, and with a sufficient number to reduce cost per head—the following may be taken as an average of what have been imported from Britain to Ontario during the last ten years; in every case first-class stock:—

ORIGINAL COST OF CATTLE AND SHEEP IMPORTATIONS TO ONTARIO, 1876-1885.

CATTLE.	Bull.	Heifer.	SHEEP.	Ram.	Ewe.
	\$	\$		\$	\$
Aberdeen Poll.....	500	350	Southdown.....	150	50
Hereford.....	450	200	Shrops.....	150	40
Short Horn.....	400	300	Hamps.....	130	40
Holstein.....	350	275	Leicester.....	100	35
Galloway.....	350	250	Otawold.....	160	35
Jersey.....	300	250	Oxford.....	75	40
Devon.....	250	200	Lincoln.....	75	30
Ayreshire.....	250	200			
Mean.....	\$360	\$260		\$110	\$40

I do not expect that this table will satisfy every breeder, nor is it supposed to be exact, but the approximation is close enough to serve all practical purposes.

Bulls and Heifers from Birth to Eighteen Months.

Basing upon paragraph 6, this shall be a simple practical statement of debit calculated upon a herd of thirty cows that keep one cattleman fully employed.

Sire's service.....	\$4 00
Two months' keep of cow previous to calving	6 50
Keep of cow and calf for seven months during nursing (summer)	15 00
Keep of calf for nine months.....	36 00
	<hr/>
	\$61 50
Share of attendance.....	11 00
Proportion of losses.....	17 50
	<hr/>
Actual cash cost.....	\$90 00

It appears then that even on a large scale it is not possible to produce a good yearling bull at less than \$90 cash; heifers will be \$15 less. As to profits see another paragraph.

Rams and Ewes from Birth to Eighteen Months.

Taking the same date of birth for sheep as for cattle, namely 1st of April, and service therefor having been about 1st November, weaning in middle of July, with 200 ewes to keep a shepherd in full employment, we have the following account:—

Keep of ewe 3½ months between weaning and service—15th July to 1st November, 1884	\$1 75
Sire's services 1st November, 1884	0 75
Keep of ewe—1st November to 1st April, 1885	3 50
Keep of ewe and lamb until weaning	2 50
Keep of lamb for 14 months—sold September, 1886	9 00
Share of attendance.....	2 00
Proportion of losses.....	1 50
	<hr/>
	\$21 00
Credit one clip of wool from ewe and shearling	3 00
	<hr/>
Actual cash cost.....	\$18 00

I am prepared for more comment upon this result than that of cattle, because usually breeders are not in the habit of calculating their position even with the best of pure bred sheep, as they certainly do not do with common ones. I have not given the details of rations either for cattle or sheep as our previous reports have done so several times, and the general statement is enough that their management in this respect consists of neither of the extremes, but a good liberal allowance of all that practice in our provincial conditions has shown to be best for the ends in view,—i.e., the production of first-class animals up to the requirements of the time.

A shearing ewe will cost \$4 less than the ram, and it will be obvious to all who study the figures of cost that more profit is derived by selling the ram lambs the previous fall, under the well-known fact that most men give about as much for a vigorous lamb as they usually do for a shearling, and as the difference of cost of production is about \$10, there is the very important item of nearly that amount in favour of selling the lamb as against the shearing.

Cost of Producing Different Breeds of Cattle and Sheep in Ontario.

That animals eat according to size, age and other conditions is true, and as our Experimental Farm has had the longest experience of the largest variety of cattle and sheep that cover these "other conditions," we should be able to place them fairly well under this heading.

COST OF PRODUCING CATTLE AND SHEEP IN ONTARIO.

CATTLE.	Bull.	Heifer.	SHEEP.	Ram.	Ewe.
	\$	\$		\$	\$
Short Horn	115	95	Lincoln	21	16
Aberdeen Poll	110	90	Cotswold	20	16
Hereford	95	80	Leicester	19	15
Galloway	90	75	Oxford	19	15
Devon	90	75	Shrops	18	14
Holstein	75	65	Hamps	17	14
Ayrshire	70	60	South Down	15	11
Jersey	65	60			
Mean	\$90	\$75		\$18	\$14

In the making of this table I have had to consider the cost of imported sires and dams, their reliability in breeding, freedom from disease, general well doing under Ontario conditions, cost of keep and the ability of the cow and ewe to make good calves and lambs. Our experience has been comparatively short with Galloway, Holstein and Jersey Cattle, and with Lincoln and Hamps sheep.

The Prices Got for Different Breeds in Ontario.

This need not be a lengthy paragraph, nor a difficult one, though we do not claim to strike figures to please every breeder in the country. Neither do we expect so make any relative prices with either the cost of production or those paid for importations, although no doubt both considerably affect the actual selling prices throughout the country, whether for home or American use. Then also it may be that we shall meet with the rather odd position of getting less price than the real cost of production; for a good many men, as we have already hinted, do not know what the latter is in their own experience or that of others.

PRICES OF CATTLE AND SHEEP IN ONTARIO.

CATTLE.	Bull.	Ewe.	SHEEP.	Ram.	Ewe.
	\$	\$		\$	\$
Aberdeen Poll	350	210	Shrops	40	30
Hereford	300	200	Hamps	35	25
Jersey	300	170	Oxford	30	25
Galloway	275	200	South Down	30	23
Holstein	250	200	Leicester	30	15
Short Horn	210	175	Cotswold	30	15
Ayrshire	100	70	Lincoln	28	15
Devon	80	80			
Mean	\$235	\$167		\$32	\$21

The Ontario Experimental Farm has handled 177 of these cattle during the last ten years, and as many as 1200 head of the sheep named, all thoroughbred. With this experience, with also other public sales throughout the Province, and many private sales of the most reliable kind, we have no hesitation in asking our farmers to accept of the foregoing prices as representing Ontario during the last ten years. It must be remembered, in commenting upon these prices, that the very lowest have been used in making up the averages, cases that some would have omitted as being exceptional. An average of anything is usually an unexpected thing.

PROFITS OF CATTLE AND SHEEP BREEDING IN CANADA.

And now we are likely to create some controversy. Take first this balancing table:—

CATTLE.	Cost of Production.	Price obtain'd	Profit.	SHEEP.	Cost of Production.	Price obtained	Profit.
	\$	\$	\$		\$	\$	\$
Aberdeen Poll.....	100	280	180	Shrops.....	16	35	19
Jersey.....	63	235	172	Hamps.....	15	30	15
Hereford.....	87	250	163	South Down.....	13	26	13
Holstein.....	70	225	155	Oxford.....	17	28	11
Galloway.....	83	237	154	Leicester.....	17	22	5
Short Horn.....	105	193	88	Cotswold.....	18	22	4
Ayrshire.....	65	85	20	Lincoln.....	18	21	3
Devon.....	83	80	.....			
Mean.....	\$80	\$200	\$120		\$16	\$26	\$10

The first thing objected to will probably be the low cost of production as considered by the respective producers, in which argument will be advanced that sufficient allowance has not been made for risks, and may be also as regards actual food and care. It is worth noting that there is practically no difference in the actual cost of producing a thoroughbred animal of eighteen months and a well done steer of the same age that usually weighs 1,200 lbs. I am ready with every detail when required. This will apply nearly altogether to cattle, as sheep have not been much under the consideration of any one particularly. The only example of no profits is with the Devons, where there is even a small touch of a loss. The market for these has, however, very much improved within two years from the American side; for, indeed, a very strong and considerably successful attempt was made recently to buy up all the Devon herds of Ontario. In these dairy times this breed should not be neglected, and their patrons may reasonably expect a renewal of better prices.

Where pure-bred cows are used directly for the Dairy, in addition of course to the production of their kind, prices, and therefore profits, cannot be such a prominent thing; and on the other hand, where any breed is used more immediately to improve or produce something through a commoner source for a particular purpose, or are comparatively new to a country, prices and profits stand much higher. The Ayrshire is a good example of the former position, which, as shown here, on an average gives a profit of only \$20 per head. But, with a breed as prominent in dairy circles, we have the Holstein (Dutch properly) giving a profit of \$150, a result coming with their comparative newness and their fame as heavy milkers. The other dairy breed of the list (the Jersey) is just a little

ahead of its Dutch neighbour in profits at present, a position not so much from any newness, but an unusually vigorous continental exposition of their merits.

The strictly beef field is well contested in the item of profits—the exception being the old Durham, and this is easily accounted for by age and numbers. It may be said that \$88 is no small profit on an eighteen months bull or heifer; but, as yet, the greater field of production occupied by them makes this even a handsome profit. The Galloways have stood the competition remarkably well, and compared with cost of importations, are making a better balance sheet than most others. Naturally the American market is also giving the Hereford and Aberdeen Poll a high place in our revenue, and it will not escape observation that the Hereford and Galloway hold a very distinct place as regards cost of production.

It cannot fail to stand as a striking fact in the live stock breeding of Canada, that with over eight distinct breeds of cattle we have been realising an average per head profit of \$120, or one and one-half more than their cost of production. Now, what does this mean? It certainly looks a large thing, but after all is it more *per acre* than any other popular and well managed farm product? We have no time to show this now, but close meantime with the reflection that as a branch of our profession the production of thoroughbred cattle and sheep demands a larger profit than possibly any other.

We submit the sheep averages with even more confidence than those of cattle. Comment is hardly required. An average of \$10 is small encouragement, and still there is a fair return *per acre*. If it cannot be *per acre* with live stock, we are not up to time,

2. CONDUCT OF DIFFERENT BREEDS OF CATTLE AT THE ONTARIO EXPERIMENTAL FARM.

It is four years since we gave any detailed account of the general behaviour and standing of the herds of this Farm, and having had extended experience not only of the old but of new breeds, we think it desirable in the interests of the Province to bring materials up to date. This is true experimental work.

Aberdeen Angus Polls.

Our extended acquaintance with this breed has been a favourable one in several respects. In nursing, however, there is no very marked improvement; neither can we speak of them as better than their competitors in ability to withstand extremes of climate. Their early maturing properties are very marked, and we consider not second to anything in our experience. First crosses with Short Horn grade cows are not only hornless but free of any scur; indeed, in all the markings, form and other characteristics, we would have no difficulty in disposing of such crosses as pure bred Polls—male or female. We possess an entirely *red* cow of this class, imported from Scotland, secured purposely as a specimen of the older type in respect of colour. This cow is giving calves as black and mossy as any of the others; and, by the way, she is a good dairy cow. We are prepared to venture her with a red Poll bull and get black calves also. What do Messrs. Geary, Boyd and Paton say to this?

Ayrshires.

Not much new about this old dairy breed; still the trouble of high milk before and after calving. With twins at foot we had to milk twice a day by hand for three weeks after calving, and milk had also to be removed two weeks before calving. They are true and reliable breeders, and yet we have not had any transmission of their prominent milking properties by use of the bull with grade cows. The conduct of one of these cows will be remembered in our last year's testing of breeds, when her milk made an usually strong record in richness, and now in suckling a calf she still upholds the reputation.

Devons.

Of this distinctly intermediate class of cattle—milk and beef combination—we have to repeat the observation that none can make better calves, few so content and hardy, and but one richer in dairy products. The Devon has not held the world's patronage because of undersize, and possibly, also, of moderation in maturing and milk quantity, but it is difficult to conceive of a more desirable cow on upland, rangy pastures for the butter factory.

Galloways.

Looking back ten years we have to acknowledge to a share in the general ignorance regarding this breed. As nearly all available literature has been old country, and that of itself old, our conceptions of Galloway characteristics were slow maturers, indifferent milkers, and difficult to manage. The lovers of them in Canada have been too diffident in correcting the teachings thus conceived; for unquestionably if true long ago it is not true now, by specimens in our herds, and from what we know of others in Ontario. Particularly the milking in quantity and quality of the Galloway is no uncertain thing, and we have had them suckling calves in winter with all the good doing of many, and superior to the Aberdeen Poll and Hereford in this respect.

Guernsey.

We are not yet sure what to make of this breed of cattle—where to place them in these competitive days, and say with any exactness what they can do. The bull retains full vigor and weighs 1,500 at four years, but the cows impress us as possessing a somewhat delicate constitution, and in milking have not yet made anything unusual either in quantity or quality. We hope ere long to be able to speak upon the result of crossing with the common grade cows.

Herefords.

For the first time in our management we have a dairy Hereford cow—a good, fair milker in all respects, and taking her place amongst the ordinary dairy cows. This is more likely to be a transmitted property than any other circumstance, for, as “Cronkill Duchess,” she traces straight back to the old Downton Castle herd that did not want for milk. We are still treated to doubtful headshakings when introducing another Hereford cow, weighing 2,100 pounds and that is unduly full of flesh, without any grain winter and summer. We have refused \$3,000 for Conqueror (7510), and Her Majesty's Commissioner at Windsor has asked if we will return him to their Herd.

Holsteins.

I have not been able to read all the controversy that has resulted from our testing of cows during 1885-6, and especially as regards Holstein and Jersey, nor have we considered it necessary—with one exception—to respond to any of the many invitations, actual or implied, from those who have been unable to throw aside “self” in criticising our experimental work. No answer is needed when men speak or write so strongly under the influence of the great dollar. Our Holsteins are doing well: “Adanc, 190,” weighs 2,200 pounds at four years, and receives very favourable praise even from Short Horn lovers. We think three-year-old cows should average more than 1,075 pounds. They have good constitutions, strong in impressive power, and we have on hand for fall exhibition a steer from a very common grade cow and the bull of this breed that may serve to give light on the “general purpose” to some.

Jersseys.

Were it possible to apply this saying of Ruskin, that “it is a matter of the simplest demonstration that no man can be really appreciated but by his equal or superior” in

criticising this breed of cattle from the standpoint of another breed, the lesson would be a good one; but as they have no equals and no superiors in a certain way, we stand without the usual ground of comparison. We are not so satisfied with the way St. Mary's Boy (535), is marking his calves this year, but very much so with the development of the cows in all the form and room and quality of their milk field.

Short Horns.

"Rob Roy" (45,484), has got back about twelve cows from sixty that came to him since importation; hence so long as this continues we can assuredly say it is not his fault. The trouble, and therefore expense, of irregular breeding continues with some cows, as to which Professor Grenside will likely say something ere long.

3. DIFFERENT BREEDS OF SHEEP AT THE EXPERIMENTAL FARM.

Our nine breeds of sheep are making such a prominent record this year with lambs that we give a special paragraph to that subject. In other respects they are worth mentioning. Of the newer breeds to us, the Cheviot ewes have for two seasons in succession been thinning off their wool in midwinter without any of the ordinary causes—such as vermin, overheating with food, or otherwise out of trim apparently. In trying to attribute this to climatic changes we are met by the want of similar shedding among the black-faced Highland of Scotland, that are holding their wool similar to natives, and it may be urged that they would more likely be the first to change. The Cheviot ram, however has been regular in this respect. Both these breeds are evidently feeling the five months' house confinement; they do not settle down at any time to the quieter sleepy conditions of the heavy breeds, and do not even *flock* with them when being handled in close quarters, but will take the fence or hurdle with great ease. We cannot see anything in the Highland breed to recommend for any Canadian conditions, but it is certainly worth while to prosecute experiment with the Cheviot. If we could retain the wool, the hardiness, the mutton quality, and at the same time increase size one-half, this breed would claim a considerable recognition on our upland pastures. We are not prepared as yet to recommend the Hamps against the Shrops. If we ever do it will be owing to a better texture and closer crop of wool, and possibly better constitutions—not yet to our experience in the other good things among sheep, as to which we require more time. South Down good-doing has not been so prominent with us of late, and of all the Downs we are handling the Oxford has unquestionably stood the all-over comparison best. The recuperative power of the Leicester has been well exemplified with the ewes imported in 1884, that then looked no better than any roadside scrub and that now command offers of \$60 per head. Lincoln and Cotswold are maintaining their weight of wool and good conditions.

We have got the following average of lambs per ewe this season—beginning on 3rd March and ending in May:—

Shrops	1.75
Hamps	1.75
Lincoln	1.67
Oxford	1.62
Leicester	1.50
Cotswold	1.50
Merino	1.50
Cheviot	1.50
South Down	1.40
Highland	1.00
Average over all	1.52

There are about equal numbers of male and female. The crop of lambs in 1885 was unusually poor in numbers and quality, caused undoubtedly by all the ewes being shearlings, and mostly in high condition as recent importations. Hence, possibly, the resumption of fertility this year, both of rams and ewes, by sufficiently liberal management and a full change to pasture only in summer, and on hay, roots and bran during winter. We have also to note stronger and fresher lambs and more milk by timing the lambing one month later than usual.

4. ARE MANY GOOD CALVES THE NATURAL FOLLOWING OF AN EPIDEMIC ABORTION IN A HERD OF CATTLE?

As reported by Professor Grenside, we experienced serious loss in 1884-5 by abortions throughout all the breeds of cattle, and no doubt he was right in attributing this to direct importation. A point of much value to everybody, and though perhaps known to many, has not been impressed, is the question I have asked above. We are now running over with calves from all sources, and though we can count two dead ones, they were on full growth. The aborting cows were allowed, in most cases, to go on to their natural time and get the ordinary management of the place, summer and winter. Whatever had been the cause and particular physiological trouble, it seems to have all disappeared. The condition, freshness and vigour of the cows since have been cause of comment, and this upon pasture and the following winter rations daily:—Cut hay, 12 lbs.; pulped turnips and mangels, 20 lbs., mixed in a heap with 2 lbs. of wheat bran, fed thrice per day. Now, is all this reliable calving and bloom immediately after the epidemic the natural following of most troubles and diseases in all animal life, and to be accounted for only by good vigorous constitutions, youth and good management? If more, what?

5. PUBLIC SALE OF LIVE STOCK, 23RD SEPTEMBER, 1886.

Lot.	CLASS.	PURCHASER.	Amount.	Total.
	CATTLE.		\$ c.	\$ c.
1	<i>Short Horns:</i> Heifer	John Lamont, Caledon, Ont.	75 00	75 00
2	<i>Herefords:</i> Bull	H. A. Muntz, Alport, Muskoka.	140 00	
3	do	do do do	210 00	350 00
4	<i>Aberdeen Polls:</i> Bull	Thomas McRae, Guelph, Ont.	160 00	
6	Heifer	R. Shortreed, do	120 00	280 00
7	<i>Galloways:</i> Bull	T. McRae, Guelph, Ont.	105 00	105 00
8	<i>Devons:</i> Heifer	W. J. Rudd, Guelph, Ont.	65 00	65 00
9	<i>Ayrshires:</i> Bull	W. Keough, Owen Sound, Ont.	45 00	
10	Heifer	J. Healey, Strathroy, Ont.	85 00	130 00
11	<i>Holsteins:</i> Heifer	John Leys, Toronto, Ont.	100 00	
12	do	do do	70 00	170 00
13	<i>Jerscys:</i> Bull	Charles Cumming, Troy, Ont.	42 00	
14	Heifer	Sydney Fraleigh, St. Marys, Ont.	120 00	162 00

PUBLIC SALE OF LIVE STOCK—(Continued).

Lot.	CLASS.	PURCHASER.	Amount.	Total.
	CATTLE—Continued.		\$ c.	\$ c.
15	<i>Guernseys:</i> Heifer	T. Ballantyne, Stratford, Ont.	85 00	85 00
16	Hereford Grade Steer	W. West, Guelph, Ont.	140 00	
17	Shorthorn do	W. Weir, St. Marys, Ont.	136 00	
18	do do	do do	106 00	
19	do do	do do	131 00	512 00
22	Milch Cows	Patrick Malone, Guelph, Ont.	26 00	
23	do	George McGill, do	25 00	
24	do	Robert Howie, do	24 00	
25	do	Edwin Gray, Puslinch, Ont.	21 00	96 00
		Gross total for cattle		2,030 00
	SHEEP.			
	<i>Leicesters:</i>			
1	Ram	A. C. Willett, Durham, Ont.	10 00	
2	do	J. Speers, Mosboro', Ont.	15 00	
5	Ewe	A. C. Willett, Durham, Ont.	13 00	38 00
	<i>Cotswolds:</i>			
6	Ram	Henry Swayzee, Aspedin, Muskoka..	17 00	
7 & 8	1 pair Ewes	James McIrvine, Paris, Ont.	16 00	33 00
	<i>Lincolns:</i>			
12 & 13	Pair Ewes	John Morgan, Strathroy, Ont.	11 00	11 00
14	Highland Ram	Thomas McRae, Guelph, Ont.	5 00	5 00
	<i>Oxfords:</i>			
18	Ram	W. Brockie, Paisley, Ont.	21 00	
19	do	H. R. Pattison, Brantford, Ont.	23 00	
22 & 23	Pair Ewes	George Robinson, Claude, Ont.	22 00	
24 & 26	do	John Morgan, Strathroy, Ont.	22 00	88 00
	<i>Shropshires:</i>			
33	Ram	T. McRae, Guelph, Ont.	40 00	
35	do	R. Rennelson, Galt, Ont.	16 00	
36	do	J. C. Wood, Florence, Ont.	19 00	
37	do	John Morgan, Kerwood, Ont.	17 00	
39 & 42	Pair Ewes	T. McRae, Guelph, Ont.	52 00	144 00
		Total for sheep		319 00
	HORSES.			
	Brown Mare	John Shortreed, Barrie, Ont.	120 00	120 00
		Total for horses		120 00

ABSTRACT.

Cattle	\$2,030 00
Sheep	319 00
Horses	120 00
Total amount of sale	\$2,469 00

6. ENQUIRIES ON HAND.

We have arranged to make two important enquiries during the winter, 1886-7—the value of bran in feeding store cattle; and for this purpose will set aside eight head in two lots—one to alternate with the other each month, and to receive equal weights of bran, hay and roots, and equal weights of a mixture of corn, peas, oats and barley, with hay and roots also. It will be necessary to chemically analyze all those foods, as well as the manure obtained, in order to draw practical conclusions. The other enquiry is the feeding value for dairy purposes of the hay of permanent pasture as recently established by us, and of the ordinary timothy and clover of the Province, in which we will use four cows—noting quantity and quality of milk and the life sustaining properties of each among other things. We should have an interesting bulletin upon these two subjects in June next.

IV.—THE EXPERIMENTAL.

1. EXPERIMENTS FROM 1876 TO 1886, INCLUSIVE.

In view of the widening importance of experimentation, and in order to give the country an idea of the ground covered by us, I have pleasure in submitting a list of the experiments that have been undertaken here from 1876 to 1886, inclusive.

I beg respectfully to suggest that no better compliment could be paid our farmers than giving them a copy of these in a separate condensed form, immediately. No doubt, as in such work everywhere, a good deal may have been overlooked, a good deal requires further development, and a good deal has been closed up to the light of the times. Experimentation is to verify more than to discover, and by a near public criticism of what we have, and what we have not done, our future in this line should be considerably assisted.

Year.	No.	SUBJECT.
1876	1	Feeding pigs; raw vs. cooked food.
"	2	Cereals, with and without fertilizers.
"	3	Turnips, mangels, carrots and potatoes; with and without manure.
"	4	Four kinds of peas in competition.
"	5	Seven kinds of spring wheat, five of oats, and three of barley in competition.
"	6	Characteristics of wool from seven sources.
"	7	Fifteen varieties of turnips and eight of mangels in competition.
"	8	Judging and valuing roots by specific gravity and texture.
"	9	Chemical analysis of roots by specific gravity and texture.
"	10	The growth of seven varieties of winter wheat, fifty-three of spring wheat, thirty-three of oats, and twelve of barley.
"	11	The feeding of sheep on raw and on cooked food.
"	12	The feeding of cattle on raw and on cooked food.
"	13	Turnips under special fertilizers.
"	14	Potatoes from different sized sets.
"	15	Mangels with and without liquid manure.
"	16	Wheat from different fertilizers.
"	17	Turnips and carrots with and without lime.
"	18	Barley from different fertilizers.
"	19	The fall and spring manuring of mangels.
"	20	Lucerne and other clovers under different manures.
"	21	Mangels and sugar-beet under four special fertilizers.
"	22	Testing of forty-one varieties of wheat, oats and barley, from American Centennial.
"	23	Corn—five kinds.
1878	24	Introduction to five breeds of sheep.
"	25	Cost of producing pure-bred shearling rams and ewes.
"	26	Classification and value of wool from ten sources.

EXPERIMENTS, ETC.—*Continued.*

Year.	No.	SUBJECTS.
1878	27	Some varieties of winter wheat as regards produce and liability to disease.
"	28	Oats and barley with different manures.
"	29	Fourteen kinds of spring wheat in opposition.
"	30	Spring wheat under fall and winter manuring.
"	31	Barley under fall and winter manuring.
"	32	Sugar-beet and sugar-cane.
"	33	Twenty-three varieties of grasses and clovers.
"	34	Lucerne and thousand headed kale.
"	35	Four kinds of peas in competition.
"	36	Thirteen kinds of turnips against each other.
"	37	Turnips from fall and spring manuring.
"	38	Turnips at various distances apart on the flat and drilled.
"	39	Twelve varieties of mangels, and the results of transplanting.
"	40	Mangels and carrots from late and early sowing and fall and spring manuring.
"	41	Mangels, turnips and carrots, under different manures.
"	42	House sewage on roots.
"	43	Four kinds of potatoes in competition.
"	44	Potatoes by different sized sets.
"	45	Potatoes from different manures.
"	46	Fattening steers upon turnips, straw and corn.
"	47	Feeding value of our turnips and mangels.
"	48	The milling properties of some wheats.
"	49	Our green fodder crops.
1879	50	Comparison of our breeds of cattle.
"	51	Comparison of our breeds of sheep.
"	52	Various manures on wheat.
"	53	Wheat, barley and oats, after roots and several manures.
"	54	Mangels, turnips, carrots and sugar-beet.
"	55	Nineteen forms of fertilizers on turnips.
"	56	Drilling and broadcasting of lucerne.
"	57	Our green fodders to date.
"	58	Condition of grasses and clovers to date.
"	59	Fourteen kinds of mangels and three of sugar-beet in opposition.
"	60	Nineteen kinds of turnips and thirteen of mangels, two of sugar-beet, and four of carrots.
"	61	Twelve varieties of potatoes.
"	62	A plot of permanent pasture.
"	63	Durham and Hereford grade steers in opposition.
"	64	Feeding sheep, different breeds and foods.
"	65	How much should be paid for store steers?
"	66	What it costs to make beef.
"	67	The scientific bearings of our winter feeding of live stock.
"	68	Classification and relative value of wool at O. E. F.
1880	69	Cost of producing various crops.
"	70	The prematuring of young stores.
"	71	Fattening of young sheep.
"	72	Cream and butter from different breeds of cows.
"	73	Milk and cream from soiling and grazing.
"	74	The effects of special fertilizers applied in 1878.
"	75	Three years' cropping after F. Y. manure and special fertilizers.
"	76	Effects of manures upon wheat second year.
"	77	The effect of nineteen varieties of manures on wheat, from previous application to roots.
"	78	Five years' experience of thirty-three forms of fertilizers.
"	79	Apatite upon winter wheat.
"	80	Produce of roots at various distances apart on the drill.
"	81	An early catch of mangels and carrots.
"	82	Thirteen sorts of potatoes in competition.
"	83	Green fodder.
"	84	Permanent pasture.
"	85	Nine varieties of barley in competition.
"	86	Thirty varieties of oats in competition.
"	87	The growth of nine spring wheats.
1881	88	The washing of wool.
"	89	Carcass and wool of six kinds of wether lambs.
"	90	Comparison of diameter of fibre of twelve kinds of wool from lambs.
"	91	Prepared and unprepared hay and roots in the fattening of cattle.
"	92	The cost and profit of two and three-year-old steers.
"	93	Does it pay to fatten cattle for manure production only?

EXPERIMENTS, ETC.—*Continued.*

Year.	No.	SUBJECTS.
1881	94	The value of a manure heap.
"	95	Sir J. B. Lawes on our cattle-feeding experiments.
"	96	The comparative size, weight and value of various grades of fat shearling wethers.
"	97	Corn, oats and peas in the fattening of cattle.
"	98	The cutting up of our experimental cattle.
"	99	The third year of wheat after seventeen forms of manure.
"	100	The effects of four special fertilizers applied in 1878.
"	101	Permanent pasture.
"	102	Four years' cropping after F. Y. manure and three special fertilizers.
"	103	Thirteen varieties of potatoes.
"	104	F. Y. manure and special fertilizers on mangels, sugar-beet and carrots.
"	105	The growing of large roots in a dry season.
"	106	Continuous crops of cereals after clover and after fallowing.
"	107	Hay from nineteen forms of fertilizers applied in 1879.
1882	108	Corn in cattle fattening.
"	109	Peas " "
"	110	Oats " "
"	111	Oilcake " "
"	112	Cotton seed cake in cattle fattening.
"	113	The microscopic examination of twelve kinds of wool grown on the O. E. F.
"	114	Fat shearling wethers.
"	115	An example of the application of science in cattle feeding.
"	116	Fifteen new winter wheats.
"	117	Some oats and barley in opposition.
"	118	Seventeen forms of manure and grain.
"	119	Room, air and light <i>rs.</i> fertilizers.
"	120	Bone-dust telling from 1878.
"	121	Lucerne <i>rs.</i> F. Y. manure.
"	122	Permanent pasture and sheep.
"	123	Some new Swede turnips in opposition.
"	124	Mangels and sugar-beet—sixteen kinds.
"	125	Potatoes—ten kinds.
"	126	Prime cattle and sheep.
1883	127	Early finished beef.
"	128	The great beef contest at O. E. F.
"	129	Preserving corn fodder in a common root cellar.
"	130	Milk in quantity and quality from ensilaged corn.
"	131	Butter from ensilaged corn.
"	132	Damaged wheat in cattle feeding.
"	133	Rice meal " "
"	134	Barley meal " "
"	135	Corn meal " "
"	136	Pea meal " "
"	137	Sugar-beet, mangels and turnips in the growth of young cattle.
"	138	Testing milk, cream and butter from ten breeds of cows.
"	139	Wool and mutton.
"	140	Influence of food on milk.
"	141	Conduct of our silos.
"	142	Wool as a bi-annual crop, and the clipping of lambs.
"	143	Winter spring wheat and barley from special fertilizers.
"	144	Thick and thin seeding.
"	145	Deep <i>rs.</i> shallow seeding.
"	146	Potatoes—eight varieties.
"	147	Rotations in cropping.
"	148	Sixteen varieties of oats.
1884	149	Mixture of grain in cattle feeding.
"	150	" " and oil cake in cattle feeding.
"	151	" " and Thorley "
"	152	Corn in cattle feeding.
"	153	Peas " "
"	154	Oats " "
"	155	White barley " "
"	156	Black barley " "
"	157	Uncooked food in cattle feeding.
"	158	Cooked food " "
"	159	Water and temperature in winter feeding of cattle.
"	160	Maturing of Short Horn, Hereford and Aberdeen Poll grade steers.
"	161	Oats and hay in sheep feeding.

EXPERIMENTS, ETC.—*Continued.*

Date.	No.	SUBJECTS.
1884	162	Peas and hay in sheep feeding.
"	163	Beans and hay " "
"	164	Low feeding of sheep.
"	165	High " "
"	166	The sale of forty head of winter-fed cattle.
"	167	The influence of food on wool.
1885	168	Testing Ayrshire, Holstein and Jersey cows.
"	169	Dairy products from ensilage and turnips.
"	170	Cream from deep setting under two temperatures.
"	171	Centrifugal separation of cream from milk of ten breeds, in comparison with deep settin
"	172	The chemical analysis of winter milk.
"	173	" " summer milk.
"	174	Cream from different breeds in relation to prices paid by butter factories.
"	175	Butter globules from twelve sources.
"	176	Size of globules in relation to cream obtained.
"	177	Churning in relation to butter globules.
"	178	Cheese from different breeds, winter and summer.
"	179	Feeding calves on skim milk.
"	180	Cost of producing dairy products.
"	181	Milk from permanent pasture.
"	182	Abortion among cows in relation to milk production.
"	183	Butter from milk and cream of different breeds.
"	184	The possibilities of the centrifugal separator.
"	185	The silo.
"	186	Buying and feeding cattle, and selling at same price.
"	187	The possibility of making yearling beef fit for exportation.
"	188	Closing beef contest.
"	189	Some wool clips.
"	190	Fattened shearling wethers.
"	191	Lambs from nine distinct breeds.
"	192	Cross-bred lambs from nine distinct breeds.
"	193	Three crops of wool in fifteen months.
"	194	Selected varieties of grasses and clovers for permanent pasture.
"	195	Black walnut and European larch clumps.
1886	196	Milk and beef from permanent pasture.
"	197	What takes place during the grazing of permanent pasture.
"	198	Special fertilizers and clovers.
"	199	Cost of producing thoroughbred cattle and sheep in Ontario.
"	200	Experience with cattle and sheep for eleven years.

2. REVIEW OF GENERAL PRINCIPLES, SUBJECTS OF ENQUIRY AND DETAIL MANAGEMENT.

I have not for ten years given anything in the form of public notes upon the A B C of Experimentation. It is now a profession distinct from farming, and from any of the sciences and arts, and thus a review of what guides, and what should be the principal subjects of enquiry in Ontario, as well as some of the details of management, will interest many. Several of the notes were obtained from other authorities.

In all experimental work there are general governing principles, such as :—

1. (a) Scientific Investigations.
- (b) Practical Investigations.
- (c) Scientific Experiments.
- (d) Practical Experiments.

2. *Investigations* are usually conducted without reference to cost. *Experiments* are made with reference to practical economy.

3. Now-a-days it is not so much *Discovery* as *Verification*, and one of the objects of experimentation may be to establish a *principle* that seems wanting.

4. To ascertain the exact state of information regarding any line of experimental work, and select the subjects of enquiry.

5. To arrange for the solution of a definite question, upon a definite plan.

6. To consider as to the form in which the enquiry should be prosecuted.

It is very undesirable to undertake many experiments at once, as they cannot all be brought to a satisfactory termination; one good one is worth many indifferent ones: *in no other way can a single station make permanent contributions to Agricultural Science and Practice.*

8. All are useless, and worse than useless—misleading, without *minuteness*, system, uniformity and care.

9. An apparently lost experiment may be a step towards a more perfect one; “failures are a necessary consequence of progress.”

10. The true experimental station must be the link between science and practice; investigations on the farm must keep pace with advanced science, and brought *home to the farmer himself.*

11. An experimental station is therefore purely *industrial.*

12. No generalizing without *long experience.*

13. The appliances should be abundant, and of the most modern kind.

14. The management must have skill, experience, time to plan, study, and to supervise constantly.

The most important subjects of experimental enquiry for Canada, at the present time are—

1. *Climate.*

1. The exact effect by kind, position, form of plantation, and area of trees, upon climate, especially on prairie.

2. Estimating the effects of *seasons* in the production of crops—in association with fertilizers.

2. *Soil.*

1. The effect of rainfall in washing away fertilizers, in various soils, with the same crop.

2. The effect of rainfall in washing away fertilizers, in the like soil, with different crops.

3. The exact physical relations of soil to plant food.

4. Chemical relations of soil to plant food.

5. The importance of having *contiguous* plots of *different* soils for testing weather, drainage, fertilizers, and crops.

6. The temperature of different soils at different depths in the same locality, and its relation to germination, rainfall, drainage, drought, conduct of fertilizers, and crops obtained.

3. *Fertilizers.*

1. The *exact effect* of a deficiency of supply of certain plant food to various crops.

2. *Relative* value of various fertilizers for particular crops.

3. *Ascertaining* market value of different fertilizers.

4. The value of the *mechanical* effect of certain fertilizers on various soils.

5. The *permanency* of various fertilizers.

6. Management of farm yard manure.

7. The special effects of apatite, gypsum, lime and salt, under various conditions.
8. Fertilizing at different *stages of growth*.

4. *Cultivation, Management.*

1. Methods of seeding and manuring.
2. Different rotations in the like, and in various soils.
3. Observations on daily growth of plants.
4. As to allowing for effects of *culture*.
5. As to the best possible means of distributing seed and manures in the soil.
6. What can be done for winter wheat in certain localities, until tree influences are re-established.
7. Identification and eradication of diseases among plants and animals.
8. Identifying noxious and beneficial insects in our rural economy—their encouragement and eradication respectively.

5. *Seeds.*

1. Germination and purity.
2. Paying for seed according to vitality and purity.
3. Depths of seeding in various soils.
4. Thick and thin seeding in the like soil.
5. The identification of plants and seeds for farmers.
6. Selection and introduction of varieties (cereals specially) from other countries.
7. The introduction of new varieties of forest and fruit trees.

6. *Crops.*

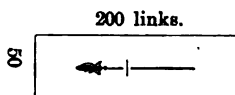
1. The suitability of various crops to the like and different conditions.
2. Comparative value of different crops—chemically and by feeding animals.
3. The conduct of plants under exactly similar conditions, (rootage).
4. Hybridising.
5. Pastures : variety of grasses and clovers.
6. Green fodders.
7. Rotations : effects on soil and crops.

7. *Selection and Preparation of Plots.*

1. Soil should not be in the *highest* or lowest state of cultivation, nor have received recent large manuring, when for testing fertilizers.
2. When to stand as a base of comparison the soil should be in the highest state of cultivation.
3. The field and plots should be of the greatest possible uniformity in—
 - (a) Quality, texture and sub-soil alike.
 - (b) General character.
 - (c) Drainage—natural or artificial.
 - (d) Aspect and exposure.
 - (e) Receiving rain and evaporating equally.

4. Proving uniformity of soil by a previous cropping, in addition to a physical and chemical analysis.

5. Size of plots to be one-tenth of an acre, in this form



and position. The smaller the plots the greater the care necessary.

6. If the field slopes, the length of the plots, however, must be up and down the slope.

8. *Management of Plot Experiments.*

1. Uniformity of treatment indispensable: manures, seeding, tillage, harvesting.
2. Every experiment should be in duplicate, as far apart as possible in the field, and several *without* fertilizers.
3. Care in *preparation* of fertilizers.
4. All seed should be tested for germination previous to planting.
5. Maturity to guide harvesting of each crop.
6. Note brairding, tillering, blooming, heading, maturing, diseases.
7. Keeping full records of rainfall, air temperature, ground temperature, maximum and minimum thermometers, hygrometers, barometer, sunshine, cloud and wind.
8. Care in noting and retaining *negative* results as well as positive ones.
9. All useless, and worse than useless,—misleading without *minuteness*.
10. An apparently lost experiment may be a step towards a more perfect one—failures are a necessary consequence of progress.

9. *Live Stock.*

1. Beefing and dairy breeds of cattle.
2. Effects of the first and subsequent crosses with the native cattle.
3. Adaptability of each to particular physical conditions.
4. Effects of food.
5. The systematic production of dairy products during winter.

MEMO.—Experimentation has to discover, verify, and disseminate; to tell why and wherefore, not so much to raise crops, *i.e.*; success is not to be measured by the crops raised, necessarily. Must learn how to interpret the results. Unavoidable that some efforts must be thrown away. All agriculture being artificial, may expect as many “noes” as “yeses.”

3. MILK AND BEEF FROM PERMANENT PASTURE.

The United States agricultural press has taught for many years that “Grass is King.” This sound aphorism is built largely upon what nature gives, for with all their age, wealth and enterprise, our neighbors have done comparatively little with cultivated permanent pasture. They find, as Ontario can also tell in her experience, that it requires fully three acres of the average cultivated hay and natural meadows to maintain one cow, or one two-year-old store. This is no adequate return for these days, when other agricultural products here and elsewhere are in such keen competition. There is no doubt of the fact that the present limit of North American pastures is 1,300 lbs. of milk,

or 85 lbs. of beef per acre per season of five and one-half months. These at three-fourths of a cent and five cents per pound give \$9.75 and \$4.25 respectively, or an average value of \$7 per acre, with the very marked difference of nearly 130 per cent, in favor of the milk product. If these deserve to be called "King," what may the future as indicated by the following?

The pasture seeded down in 1884 is still holding two cows per acre easily, and producing at the rate of 7,692 lbs. of milk per season of five and one-half months by common grade cows—cows which under any conditions never give over 25 lbs. per head daily. Were they Holsteins, Ayrshires, or Shorthorns, the season's produce would amount to about 14,000 lbs. of milk per acre. The two common six-year-old cows in this experiment are also adding to their weight at the daily rate of fully three-quarters of a pound each, which therefore may become an unfavourable feature of this pasture; for so far as known, matured cows in full milk on ordinary pasture hold their own good-condition weight only, and may reduce rather than increase in flesh.

Four acres of these experimental plots were laid down last year with our selected eight varieties of grasses and five clovers, the conduct of which is given in last year's annual report. This year, the first of their depasturing, one-fifth of the area consisting of low-lying spots was killed by frozen-lodged water in spring. Elsewhere the pasture is very wealthy. The continuous heavy spring rains delayed occupation until 20th May, when two two-year-old and two yearling store steers were put on. Had we disregarded poaching and spoiling otherwise, the animals could have had a full bite on 10th May; and were we followers of much of the ordinary practice, we could have cleaned our cattle's teeth by a four hours' run daily during the first week of that month, when rolling was done.

The rush of growth became so strong in the last week of May that, rather than mow so early, we added three two-year-old heifers to the four steers for a week, in order to keep pasture within sweet conditions. These heifers had to be removed to avoid the seasoning trouble, but we now realize that it would have been better to purchase six steers in place of four, as under proper management heavy stocking is better than allowing plants to seed and become rank. As it was, we kept under by mowing and mulching the early grasses on 11th June. I am of opinion that our mixture contains too much clover, and as cattle prefer good grasses to clovers our future recommendations will have to note this among other things. Why cattle also often choose dandelion and prefer the maturer but unseeded grasses on the outside of a field as against the more tender and less branchy ones of the like kinds in the closer conditions of the crop, we have yet to learn precisely.

The four steers are not able to keep down the four acres (or rather the three and one-fifth acres of full covered ground) which are divided into two fields of two acres each, the cattle being rotated weekly and receiving unlimited water and rock salt. No grain and no top-dressing has been given. The rain which fell on seventeen days during the period, amounted to 5.017 inches; maximum temperature in the shade, 89.8°; minimum, 33.3°; mean, 60.47°.

These ordinary Short-Horn grade steers made an average daily gain of 3.03 lbs. per head from 20th May, to 31st July. This is at the rate of 3.79 lbs. per acre per day.

That these facts will surprise many we do sincerely hope, and that they may have to be reduced when several years' experience is gathered is not unlikely. Meantime is the future to be \$58 for dairy produce, or \$31 for beef per acre per summer?

A British authority in 1872 said that, "first-class grass land is that which will produce twenty imperial stone (280 lbs.) of meat per acre without artificial assistance"; and in the public press of last month it was stated that, "in Scotland the average of permanent pasture and rotation pasture requires 1.96 acres to each dairy cow." Compare these with the results we have obtained for nearly two seasons at this experimental farm.

We have in view to test the value as pasture of several of our best native grasses, and though not looking for results equal to a proper mixture of varieties, there may be other qualities that will show how much they are deserving attention by selection and proper management.

I submit to the Ontario farmer, under every measure of caution, that our pasture tests even now are decisive enough in the sense of showing how much we have yet to learn of certain lines of our profession, and that the possibilities of Canadian climate and soil are but being touched upon.

In addition to the foregoing, which appeared as a bulletin, we have to report that :—Steers were pastured up to 15th October, or 146 days for the season, and made an average daily rate of 2.15 lbs., hence we got 312 lbs. of live weight per acre for the short season.

Cows were also taken off same date, with a record of 23 lbs. of milk per head daily, and consequently a per acre crop of 6,670 lbs. for the season.

4.—WHAT TAKES PLACE DURING THE GRAZING OF PERMANENT PASTURE.

From the previous chapter will be learned what we are doing experimentally in the production of beef and milk from pasture composed of a variety of the best grasses and clovers.

Here we desire to submit some introductory light on what coming years may say in the way of renewal of fertility under such circumstances. Necessarily the figures must be taken with caution, but in view of the attention being paid to this crop in Ontario, nothing, even of a preliminary nature, should be withheld even for one season.

In treating this subject in the future, I shall keep the store steers separate from the cows, so that we may gather some things for or against either.

In the first place we have the precise fact that the two cows on the one acre gave 6,670 lbs. of milk, and increased their own weight 217 lbs. During the season we gathered and weighed the *dried* manure, as well as took samples of the fresh droppings for chemical analysis. Allowing for a good deal left on the ground that could not be picked up easily, and for the difference between the old and the fresh manure, the two cows voided—urine excepted—about 4,680 lbs. fresh during the season, and of course from one acre.

The analysis of the milk—twice at six different times—is as follows :

Water.....	88.7518
Fat.....	3.3096
Solids other than fat.....	7.9386

The manure analysis, on a mean of four times, resulted thus :

Water.....	82.76
Organic matter.....	12.93
Insoluble matter.....	2.09
Iron and Alumina.....	1.03
Lime.....	.69
Magnesia.....	.21
Nitrogen.....	.25
Undetermined, such as soda and potash.....	.04

And the 217 lbs. of increase to live weight will be set down at its proper value.

So, altogether, the 11,567 lbs. of materials in three forms, removed from the acre of permanent pasture, can be valued at \$65, according to the markets of the day, but as this gives no correct idea of the fertility removed, we have to value in some other way.

The four store steers on four acres gave 312 lbs. of additional live weight per acre, and the following is chemical analysis of their manure :

Water.....	83.00
Organic matter.....	11.47
Insoluble matter	3.60
Iron and Alumina.....	1.32
Lime.....;	.41
Magnesia.....	.12
Nitrogen.....	.24
Undetermined, such as soda and potash .....	.07

How much fertility has been removed from these pastures and what should be done to recoup them ?

Sir J. B. Lawes writes me as follows :

"Some years ago I spent a day or two in Leicestershire for the purpose of selecting for study one of the most celebrated of the many celebrated fattening pastures of that county. The field I settled upon pastured about 17 oxen on 14 acres, without artificial food; I calculated each acre produced between 5 and 600 lbs. in increased live weight, equal to 350 to 400 lbs. of beef; this is I expect the outside possible product. The herbage of the field was exceedingly simple and might be said to consist almost entirely of perennial rye grass and white clover, the other grasses forming quite an insignificant portion of the pasture. If English experience is of any value to your country, you will find that for three or four years your new pasture will yield very large crops, and this will be followed by a considerable falling off. I find that I can improve my pasture in a cheaper manner by feeding the stock with decorticoled cotton seed than I can by means of artificial manure. If your land has been under arable cultivation for a long period of time, you will find that you must accumulate a considerable amount of fertility underground before your pasture is established. I have pasture on my farm of all ages, from the unknown to 4 or 5 years in the form of turf. Decayed roots in each acre has to accumulate about 1,000 to 1,500 lbs of nitrogen before it can obtain the composition of the old pasture, although of course soil and climate affect the result materially, I am disposed to think that the accumulation of a large quantity of organic nitrogen in the soil is absolutely essential towards the formation of a pasture. For the last year or two we have been regulating the artificial food of the dairy cows to the milk, and I have some hopes that something is to be done in this direction. You cannot, it is true, increase the yield of milk of a cow two or three months after calving however highly you feed her, nor can you make a bad milker a good one. What you appear able to do, is to keep up the maximum flow, which is generally obtained two or three weeks after calving, with a comparatively slight decline for perhaps 20 weeks or more, by a proper regulation of the artificial foods. Our standard foods in winter being mangels, chaff, cake and bran, and in summer pasture, and later we give 4 lbs. of cake and 4 lbs. of bran, to each cow per day, which yield 28 or 30 lbs. of milk per day, and at the end of each week this food is increased or diminished by $\frac{1}{4}$ lb. for each rise or fall of 2 lbs. of milk. I have not sufficiently studied the result (the daily weights of food and milk of a herd of 50 cows, extending over $1\frac{1}{2}$ years is a serious matter), but I think that the regulation of the more costly foods to the amount of milk yielded is worthy of attention."

At end of next year the Ontario Experimental Farm should be able to say something more upon the maintenance of different kinds of grasses and clovers, and how much diminution there may be in dairy product per acre. Meantime the oldest plots have been top-dressed with ten loads of first-class F.Y. manure, to be followed with 200 lbs. of bone meal per acre in spring.

5.—SPECIAL FERTILIZERS AND CLOVERS..

On 8th May, 1885, we seeded plots 71 to 80 inclusive, in range 4 of the Experimental plots, with orchard grass and red clover, at the rate of six pecks per acre, at same time taking a crop of barley.

These plots were treated in spring of 1884 with the respective fertilizers named below, when a crop of roots was taken, and the purpose is to ascertain the influence of such fertilizers through a rotation of (1) roots, (2) barley, (3) hay, and (4) spring wheat.

As we have three years' crops on hand for criticism, it is very tempting to submit results, but in view of a full and more reliable report next year, I deem it desirable merely to indicate now that some important and practically valuable facts may be looked for.

Plot 71. No Manure.

- " 72. Farm-yard manure, 14 tons per acre.
- " 73. Nitrogen mixture $\frac{1}{2}$ nitrate of soda, $\frac{1}{2}$ sulphate of ammonia and $\frac{1}{2}$ dried blood, 150 lbs per acre.
- " 74. Superphosphate, 350 lbs. per acre.
- " 75. Muriate of potash, 150 lbs. per acre.
- " 76. Nitrogen mixture, } 150 lbs., per acre.
Superphosphate, } 350
- " 77. Nitrogen mixture, } 150 " "
Muriate of potash, } 150 " "
- " 78. Superphosphate, } 350 " "
Muriate of potash, } 150 " "
- " 79. Superphosphate, } 350 " "
Nitrogen mixture, } 150 " "
Muriate of potash, } 150 " "
- " 80. Quick lime, 400 lbs. per acre.

6.—ARRANGEMENTS FOR CEREALS, 1887.

I am much pleased to be in a position to inform the public, that we have set on foot an extensive arrangement to secure such kinds of new wheat, oats and barley, from various part of the world, as are most likely to succeed in Ontario. Early steps were taken, and thus we will almost certainly be in possession of several hundred varieties in early spring, both for distribution on a small scale to such parts of the province as will best test by variety of soil and climate, and of course also for our own Experimental plots. For this special purpose we have chosen a part of No. 3 field of the farm, and trust to be able to give important results in next year's report.

V—THE MECHANICAL.

TO WILLIAM BROWN, Esq.:

DEAR SIR,—The following statement will give you a general idea of how the Mechanical Department was employed from October 1885, to October 1886. On the morning of the 1st October, 1885, a fire occurred, which destroyed the main barn, and a portion of the other outbuildings. Hence our first concern was to prepare accommodation for sheltering the farm stock in a temporary way, until new barns and stables could be erected. This was accomplished partly by utilizing what buildings were not consumed by fire, and partly by repairing those that were partially consumed, using in this temporary repair over 50,000 feet of lumber, and although this being work which student

labour could have reached. we found that we could not wait for them to accomplish it, and were under the necessity of hiring outside help. About the end of November that work was all completed, so far as was thought advisable to do.

The general repairs about the class-rooms and College, such as desks, doors, windows etc., were next seen to, as also the experimental engine to drive centrifical, or cream-separater, with counter-shafts, bands and pulleys. There were also made for farm use, six wheel-barrows, some ladders and hay racks. The farm implements and tools were overhauled; there was likewise built for the use of the creamery, an ice-house 12x14, 16 feet high, and also a number of boxes to take exhibits to the Indian and Colonial Exhibition at London, England.

There were also a number of propogating boxes made for use in the garden, likewise lawn seats, new and old repaired, and also repairing glass in green-houses. Towards the spring season we fixed pens for ewes and lambs, and bins for seed grain. After Easter examinations, repairs in College were again attended to, winter sashes taken off and stored away, broken desks and seats repaired: a general repair of field fences, gates, etc. A new fence along side of field 18, commenced last year, was completed, as also wire fence in south lane repaired, and a barbed wire fence erected in field 17, enclosing vinery, and one enclosing walnut shelter clump. Our attention was now called to preparing accommodation for twelve cows purchased in connection with the the creamery, and also a pig-sty 24x70 feet. The erecting of these buildings interfered with time intended to be devoted to building new fences, as we had now to attend to erecting hay-forks for stacking hay in several fields, having no barn room, and preparing for the annual sale of stock, which was to be held in the City of Guelph during the week of the Provincial Exhibition. We repaired the tent which was to be used in connection with the sale, erecting it first two or three times on the College grounds, for the accommodation of visitors. Set it up on the show grounds, and erected a shed for the further accommodation of the stock. There was also a show-case made for exhibiting permanent pasture grasses, and likewise a number of shipping boxes for transporting sheep and other animals by railroad.

A number of shelves were made and put up in the experimental dairy, for the purpose of curing cheese, and also shelves, cupboards, and other fixings, in the re-arrangement of chemical class-room.

In accordance with a recommendation from the Board, that instructions in the several outside departments be as thorough as possible, (and after consultation with yourself) as a means to reach that end, we devote an hour each day with the students that are in this Department to general explanations—

- 1st. As to names and use of carpenter's tools
- 2nd. Putting same in order.
- 3rd. Practical handling of tools.
- 4th. Terms used in carpentry.
- 5th. Framing buildings.
- 6th. Fence and gate making.
- 7th. General work and repairs.
- 8th. Comparative strength of materials.
- 9th. Rudimentary joinery.

After which they are set to perform various pieces of work, part of them under my assistant, and part under my own superintendence.

As to the work that is going on at the present time, the contract for the new farm steading being about completed, we begin to see the number of necessary articles yet required, not included in contract. These embrace sheep feeding racks, cattle feeding mangers, harness rooms, grain bins, wool room, pens for ewes and lambs, also house for engine, with all necessary gearing for driving cutting machines, separator, forks, etc.

These statements contain a general outline of the operations that have engaged the time and attention of this Department during the year.

Yours truly,

JAMES MCINTOSH,
Foreman.

VI—ARBORICULTURAL.

GUIDE TO PLANTING TREES AND SHRUBS ON THE SCHOOL GROUNDS OF ONTARIO.

General Advice from Students of the O. A. C.

1. Choose the best kinds of trees and shrubs for the *special* purposes—having regard to *soils, districts and exposures*.
2. Attend to every *detail thoroughly*, and adopt the *most approved* management.
3. The best *ornament, shade and shelter* are from *properly developed* trees and shrubs, so *disposed* as not to unduly check side branches.
4. Never plant upon naturally *poor* or *wet* ground, and remember that *drought* is more *dangerous* than *frost*.
5. Make no *profuse congratulations* when you have many *leaves* and some growth of *wood* the *first* and *second* years, nor *rejoice* unnecessarily if *fruit* is also abundant then, because neither are, necessarily, indications of well-doing.
6. Order your plants one month ahead of *time*, and place responsibility of *delivery* upon party supplying them.
7. In cases of *extensive* work it will pay to employ *skilled* labour, but the *education* of others at same time should not be overlooked.

Trees for Shade.

8. The best trees for *Shade* are the sugar maple, horse chestnut, Scotch elm, butter-nut, European linden and fern-leaved birch.

Trees for School-ground Shelter.

9. A mixture of maple, elm, oak, ash, beech, birch, black walnut, with evergreens of Norway spruce, Austrian pine, common white cedar and black American spruce.

Shrubs for Ornament.

10. A proper mixture of lilac (10), guelderose (6), high-bushed cranberry (10), hazel-filbert (8), hawthorn-English (15), barberry (6), and mock orange (8). The figures indicate the *branching diameter* of mature plants.

Soils.

11. All these trees and shrubs do well upon good, naturally *dry* loam, and the lighter character of *clay loams*.

Distance Apart.

12. *Shade* trees from 20 to 30 feet, *shrubs* from 6 to 12 feet, according to *diameters* given in No. 10 note; and for a *mixed* shelter bed, ten feet apart is best in view to future thinning and *selection of standards*.

Where to get Plants.

13. We have yet to be *educated* in knowing *how* to choose, *prepare* and *manage* the planting of young trees from our *forest*. Our *College* has in view to issue *special advice* on this *subject* next year. In any event, all trees and shrubs are *most reliable* from well managed *nurseries*, as being always kept in a *prepared* transplanting condition, they are ready to move at any time, and better able to do well on removal. The first cost is less from the neighbouring bush, but so is the success less on an average, even under the very best management.

Size or Age of Plants.

14. The *younger* the plants the *less risk* with all kinds; aim at not more than from *three to six years* in the nursery. Avoid *branchless* trees that have been standing *close together*.

Time to Plant.

15. From end of *April* to end of *May*. Transplanting with the buds and young leaves is not dangerous, but requires more careful attention; fall or autumn planting is not so safe.

Preparation for Planting.

16. On obtaining plants cut off any rough branches and roots, so as to balance *under* and *over ground*. Do not interfere with the evergreens in this respect. Take special care of small *fibrous* roots. Previous fall digging for shrubs and belting is good.

Weather for Planting.

17. If possible, choose mild, cloudy, and moist weather, but not so wet as to make the soil *sticky*.

Making Pits.

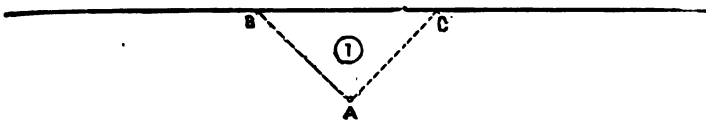
18. Make pits one-half wider and deeper than is actually required; remove any water or scum from old-made pits—squaring off the bottom well.

How to Plant.

19. Fill up pit to required depth of *special tree*; plant one inch deeper than the old mark on the stem; incline the tree slightly towards the *prevailing wind* of the district; spread out very carefully all the roots and fine fibres in the pit; fill in the best *loamy* soil first, shaking and gently pulling the plant up and down a little so as to *run* the soil amongst the roots. When half the pit is filled tramp moderately firm with the foot, and on finishing give another tramp—*heeling* close up to the stem. *Puddling* roots before planting is only required when both soil and atmosphere are dry. A *naturally moist* soil is the best.

Protection.

20. On public roadsides we would not require to protect shade trees were our laws properly administered; if the tree is planted close to fence the best guard is the triangle, thus:



This consists of one post at A with fence lumber from bottom to top nailed at B and C. If the line of shade trees is on the out-edge of sidewalk—eight or ten feet from fence—the best guard is an open one, strong, and with room to allow for growth. Never tie a tree nor allow it to rub against the guard.

After Attention.

21. If wind makes *openings* around stems, have them made good *immediately* as *drought* would damage seriously; use grass or other *rough* material as a *light mulch* in *midsummer* round each tree for the first *two years*, and place a *deeper* mulch during *winter* for the same period. Keep ground cultivated until the tree shades itself in after years. Do not cultivate *later* than August, as it tends to prolong growth that may be damaged by winter. If a severe and continuous *drought* occurs immediately after planting, it may be necessary to *water*—depending upon situation and a retentive soil; avoid watering if possible, as oft cultivation with mulch is better for future success.

Pruning.

22. No general rule can be given as to pruning: keep the tree well *balanced*, without interfering much with its *natural character*; encourage the leader, or stem shoot; prune any time from fall of leaf to budding—never draw sap by pruning in early spring; remove all dead or damaged matter anywhere, as well as improper sapling growth from the lower stem.

2.—SPECIAL NOTE FOR YOUNG PEOPLE.

Every properly developed tree is a thing of beauty and utility. They are the nobility of vegetable life—man's companions and to some extent teachers. Trees supply us with food, clothing, medicine, and the many things of every day; they make nations and actually affect the individual, for men brought up in an oak or a pine forest, respectively, are differently constituted. Trees keep us warm and cool, they mellow and purify the air for our health; they break and soften the cold winds, and moisten the hot sunshine; they breathe, perspire, and sleep, and sing; they moan, and whistle, and groan; trees have electric affinity one to another, according to kind, area covered, distance apart, and the particular atmospheric conditions; they have also particular friends and enemies in nature, both animal and vegetable, and hence for these and many other reasons we do not deserve well of our country if every person does not plant one tree every year of his or her life.

VII.—MISCELLANEOUS.

1.—BRAN AS CATTLE FOOD.

I think one of the weaknesses of agricultural things in these times is not knowing exactly what wheat bran is. Its commonness everywhere for hundreds of years may be the cause of this. Many men, no doubt, can tell of favourable experience in its use with calves, dairy cows, and possibly fattening cattle also, but its exact position, singly as a cattle food against grain of any kind, as well as its manurial value, are still largely unknown; hence the very important question of its value in the market remains a doubtful thing.

The subject demands more light, especially in these days of increasing wheat area, and lowering prices, for unquestionably, as we get about 200 lbs. of bran per acre, on an average, of winter and spring varieties—the crop may be worth so much more were we fully satisfied of its value, both for flour and for bran.

Bran, chemically, by the old and new process of milling, will average about:—

	Old.	New.
Fat	4.27	5.25
Starch	66.12	61.54
Woody Fibre.....	9.23	8.46
Gluten	14.79	17.64
Ash	5.59	7.11

Both these analyses are free of water, which is usually about 13 per cent. Compare them with whole wheat that on an average contains 1.75 per cent. of fat, starch, 65 ; gluten or albuminoids, 13 ; ash, 1.90 ; water, 13 ; and crude fibre about 6 per cent. Do the same with flour as represented by the following :—

Fat	1.2
Water	16.5
Gluten	12.0
Starch.....	69.6
Ash .....	.7

Now, as by the old process of milling, the bran took most of the gluten with it, and as by the new, the greater part of the gluten is left in the flour, it follows that the bran from the new process should be stronger, richer and fatter. Even by the old process bran contains $2\frac{1}{2}$ times more fat than the whole wheat, and exactly *three times* more than flour.

In his report on ensilage this year, Sir J. B. Lawes says :—“ It is somewhat remarkable that the composition of bran bears a very close relation to that of milk, in the proportion of the digestible nitrogenous and digestible non-nitrogenous constituents, thus :— ;

	Dig. Nit.	Dig. Non-Nit.
$3\frac{1}{2}$ lbs. bran will supply	0.42	1.41
$11\frac{1}{2}$ lbs. milk will contain.....	0.42	1.49

If these chemical constituents are of equal value, relatively, to its own source—that is the bran and the milk—and as the $3\frac{1}{2}$ of bran costs with us about 2 cents, and the milk 9 cents, we are again in possession of a fact highly favourable to bran as cattle food.

Some years ago our experimental station made a test with 18 head of store cattle, during winter, by feeding 12 lbs. hay, 35 lbs. turnips, and 9 lbs. bran per head daily ; this large quantity of bran, (about one and one-quarter pressed patent pail full) was given against several other foods—grain principally, and as we had an extensive series of them, all the comparisons are most interesting and valuable. The mean of all the testing was 2.05 lbs. of a daily rate of increase per head—at a cost of 10 cents per pound—the highest 2.70, at a cost of $12\frac{1}{2}$, the lowest 1.60, at a cost of $11\frac{1}{2}$. The bran gave a daily rate of 2.14, at a cost of 9 cents per pound of the added live weight, and as the *lowest cost* of production or $8\frac{1}{2}$ cents, was with a mixture of the best grains—corn, peas, oats, barley,—giving a rate of 2.25 lbs., we get another good idea of the importance of wheat bran.

Then, again, looking at the manurial value of foods, when used to cattle, and building upon what British experience and analysis have shown as the actual fertilizing properties of the manure from them, we are struck with the position taken by bran.

2.—MANURE VALUE OF WHEAT BRAN.

	Per cent.	Value, per ton.
Nitrogen	2.47	\$8 38
Phosphoric Acid	2.75	3 83
Potash	1.43	1 15
		\$13 36

So at the present price of \$12 per ton, we get \$13.36 of manure, or, in other words, when we feed store cattle with one ton of bran that cost \$12, the residue in the form of manure is actually worth more than the original cost. If this be doubted, or laughed at, or pooh-poohed, it simply places the sceptical party outside the pale of all modern science and practice.

The mean cost of the four kinds of grain referred to as having given the cheapest cost of production, being \$21.85 per ton, before feeding, and valued at \$9.33 when got as manure, is evident that if we take this as a standard of comparison, we could give about \$20 per ton for bran, if we believe in *manure* as a primary consideration.

To conclude, meantime it is indicated :

1. That bran is more valuable than its own whole grain, or flour, for feeding purposes.
2. According to chemical analysis, or nutritive ratio, bran is worth \$21 per ton.
3. According to actual feeding tests, it is worth \$20 per ton, irrespective of the manurial value.
4. The new process bran is more valuable for feeding cattle because, while it contains less of the starchy matter, it has, in per cent. considerably more valuable protein, or albuminoids, so valuable in forming bone and muscle.

I have the honour to be, Sir,
Your obedient servant,

W. BROWN.

PART VII.

REPORT ON
PRACTICAL HORTICULTURE.

To the Honourable A. M. Ross,

Commissioner of Agriculture :

SIR,—For several years past, in consecutive reports I have endeavored to describe somewhat minutely the various alterations and improvements from time to time made in the Horticultural Departments, the grading and re-modelling of the grounds, change of drives and laying out of flower beds, the planting of an arboretum, a vineyard and orchard, noting as clearly as possible the success and failures in each. This year I am to a large extent relieved of this duty by Professor Panton, who has taken close and copious notes throughout the season, and in his report I have no doubt may be found many particulars of interest.

The orchard as you know has been but a partial success, due principally to a succession of severe winters. Pears, of which we had fifty-five varieties, were all but a complete failure. Plums, twenty-nine varieties, have also suffered much from the same cause, and in the apple orchard, although the destruction has not been so extensive or general, yet many vacancies have occurred from year to year, and with many of the trees, although still living, their constitutions are so impaired and their vitality so weakened that each successive winter will have its victims. We are thus forced to the conclusion that the low temperature of our altitude is unsuitable to many of the standard varieties of fruit trees that may be (and in fact are) grown successfully in more favoured localities throughout the Province. To fill up blanks last spring, we procured from Fonthill nurseries, where they are making a speciality of hardy varieties, several new sorts highly commended as the hardiest at present obtainable, the proof of which may be noted in the near future.

We would here acknowledge a donation from the Fruit Growers' Association of Ontario (and we do so with gratitude), one hundred young apple trees, embracing fifty varieties of Russian origin two years from graft, the scions imported directly by the above Association. Although young for permanent planting, we have filled some vacancies in the orchard and planted the remainder in our nursery ground as a reserve for future use. The small fruits, viz. : Raspberries, Currants and Goosberries grown in a portion of the apple orchard, were fairly productive in their season, sufficient to meet all demands from the College and a surplus over, which was disposed of to hucksters and to private individuals in the neighbourhood. Of the fifteen or sixteen varieties of raspberries that we have in stock, the Philadelphia for a time proved the most prolific, but from the small size and dark colour of the berry it was less attractive than some of the others, and from the extreme hot and dry atmosphere of the month of July the crop was early over. For general purposes the Cuthbert is perhaps the most desirable

variety that we have. Its large size, deep red colour and firm flesh, will always commend it as a good market sort. We would name Herstein next in the order of merit, a hardy vigorous grower and good bearer, but its rather dark colour and soft watery texture tells against it for shipping purposes. Clark, Thwack, Highland-hardy, Brandywine, Niagara and Turner, were all more or less injured by the preceding winters, as well as some of the Black-caps, Davidson's thornless, Gregg, Dorchester, and Mammoth Cluster.

Gooseberries and Currants were an average crop, although as usual they were sadly punished by the caterpillar. Of the nursery ground and tree clumps but little need be said; no new planting has been done during the year, the young trees consisting of Norway and Native Spruce, Larch, Ash (English and American), Butternut, Birch, Elm, Linden, Hickory, Maple and Oak, as well as some of the larger shrubs. Buckthorn, Barberry, Spindle tree, etc., etc., are all very healthy plants and require transplanting in the spring, either in the nursery or into new clumps, as may be decided on.

GREENHOUSES.

In this department no change has been made for the year, further than some indispensable patching to keep them in working order. The whole structure, as has been repeatedly reported, is in a very unsatisfactory condition, constructed at first on a very primitive system and finished in the roughest style. Heated by flues, which have never wrought well, the smoke and gases frequently escape in the houses to such an extent that it is difficult throughout the firing season to keep the plants in anything like a healthy condition.

Our stock of plants consists principally of the soft-wooded or herbaceous sorts—in fact the houses in their present state are quite unfit to grow the more valuable class of hardwooded plants, and apart from the unsightly appearance the dilapidated buildings present in the position they occupy, they stand in the way of carrying out the adopted plan for this section of the grounds, and I trust now that the old buildings of the farm are being removed something may be done in this matter at an early date, so that the plan of the grounds may be completed throughout.

But notwithstanding the unsatisfactory state and limited space that the houses afford, we were enabled last spring, by the aid of a number of hot-beds, to raise from seeds and cuttings together, from eight to nine thousand bedding and ornamental plants of all sorts, to furnish the flower beds and borders for the summer, which we think both for quantity and variety were quite equal in appearance to what they have been in any former year.

This winter, from a more equitable distribution of the students, we were enabled to resume more systematic instruction during the months when but little can be accomplished to forward the work of the year. This instruction consists of practical lessons on grafting and budding, the various modes explained to and practiced by the students, the propagating, hybridizing, arranging and handling of plants generally, becoming familiar with their names, technical and common, composition and preparation of suitable soils, the potting, drainage, pruning and training, the various systems of heating, the temperature required, watering, moisture, air, light and ventilation necessary, also the construction, regulation and management of hot-beds, with the benefits to be derived from their use—in short, as far as we can, all that pertains to practical horticulture, and I am glad to say that the great majority of the students appreciate our efforts in this direction.

KITCHEN GARDEN.

As for several years past this department has done all that could reasonably be expected of it, the crops with scarcely an exception were abundant and good as far as the average year will permit of. Some of the late and more tender crops—corn, mellons and tomatoes—are rarely secured to the full extent in our locality before the early fall frosts pinch off their share. But all vegetables were plentiful in their season, and as usual, such sorts as can be preserved are stored in sufficient quantity for winter use.

Last spring, in making up our orders for vegetable seeds, we selected an unusual variety of each sort, with the idea of testing experimentally the comparative merits of each, and after the most careful observation throughout the season we have come to the conclusion that either the amateur or professional, by procuring a good descriptive catalogue from a reliable seed firm, of which we have now a good choice, will perhaps gain more information than the experience of a single individual will afford in a life-time, making (of course) full allowance for the many new and untried varieties often unduly puffed up by the originators, and frequently result only in the disappointment, and at the cost of the more hopeful and credulous.

The following fruits and vegetables were supplied to the College during the year :

January.

Carrots, $1\frac{1}{2}$ bush. at 25cts.....	\$ 43	
Parsnips, $1\frac{1}{2}$ bush. at 40cts.....	60	
Turnips, $2\frac{1}{4}$ bush. at 20cts.....	45	
Onions, $3\frac{3}{4}$ bush. at \$1 00.....	3 75	
Celery, 18 doz. at 75cts.....	13 50	
Peppers, 2 doz. at 20cts.....	40	
Cabbages, 3 doz. at 70cts.....	2 10	
Herbs, etc.....	10	
		\$21 33

February.

Turnips, $5\frac{1}{2}$ bush. at 20cts.....	\$1 10	
Carrots, 4 bush. at 25cts.....	1 00	
Onions, $6\frac{1}{2}$ bush. at \$1.00.....	6 25	
Parsnips, $4\frac{1}{2}$ bush. at 40cts.....	1 80	
Beets, 1 bush. at 30cts.....	30	
Vegt. Marrow, 2 doz. at 60cts.....	1 20	
Cabbages, 4 doz. at 70cts.....	2 80	
Celery, 1 doz. at 75cts.....	75	
Herbs, etc.....	30	
		15 50

March.

Carrots, $7\frac{1}{2}$ bush. at 25cts.....	\$1 87	
Turnips, $11\frac{1}{2}$ bush. at 20cts.....	2 30	
Parsnips, $7\frac{1}{2}$ bush. at 45cts.....	3 37	
Beets, 1 bush. at 30cts.....	30	
Onions, 8 bush. at \$1.00.....	8 00	
Cabbages, $4\frac{1}{2}$ doz. at 70cts.....	3 15	
Sundries.....	25	
		19 24

April.

Carrots, 3 bush. at 25cts.....	\$ 75	
Onions, 8 bush. at \$1.00.....	8 00	
Parsnips, $8\frac{1}{2}$ bush. at 45cts.....	3 71	
Turnips, $8\frac{1}{2}$ bush. at 20cts.....	1 65	
Beets, 7 bush. at 30 cts.....	30	
Cabbages, $5\frac{1}{2}$ doz. at 70 cts.....	3 85	
Herbs, etc.....	25	
Sundries.....	15	
		18 66

May.

Parsnips, 11½ bush. at 45 cts.....	\$ 5 17	
Onions, 3 bush. at \$1.00.....	3 00	
Salsify, 1½ bush. at 75 cts.....	94	
Turnips, 6 bush. at 20 cts.....	1 20	
Rhubarb, 21½ bush. at 70 cts.....	15 05	
Beets, 1 bush. at 30 cts.....	30	
Lettuce, 7½ bush. at 70 cts.....	5 07	
Cabbages, 3 doz. at 75 cts.....	2 25	
Asparagus, 756 bunches at 4 cts.....	30 24	
Herbs, 8 bunches at 5 cts.....	40	
Sundries.....	20	
		<hr/> \$63 82

June.

Rhubarb, 19 bush. at 60 cts.....	\$11 40	
Onions, 2 bush. at \$1.00.....	2 00	
Lettuce, 8½ bush. at 50 cts.....	4 12	
Spinach, 17½ bush. at 50 cts.....	8 75	
Peas, 2½ bush. at \$1.00.....	2 25	
Asparagus, 879 bunches at 4 cts.....	35 16	
Gooseberries, 96 qts. at 7 cts.....	6 72	
Herbs, etc.....	45	
		<hr/> 70 85

July.

Peas, 10½ bush. at 90 cts.....	\$9 45	
Onions, 2 bush. at \$1.00.....	2 00	
Lettuce, 3½ bush. at 40 cts.....	1 30	
Beets, 1½ bush. at 80 cts.....	1 40	
Carrots, 3½ bush. at 60 cts.....	2 25	
Spinach, 1½ bush. at 40 cts.....	60	
Potatoes, 4½ bush. at \$1.25.....	5 31	
Beans, 1½ bush. at \$1.00.....	1 50	
Apples, ¼ bush. at 80 cts.....	60	
Gooseberries, 32 qts. at 7 cts.....	2 24	
Currants, red and white, 196 qts. at 8 cts.....	15 68	
Currants, black, 45 qts. at 10 cts.....	4 50	
Raspberries, 624 boxes at 6 cts.....	37 56	
Asparagus, 110 bunches at 4 cts.....	4 40	
Herbs, etc.....	30	
		<hr/> 89 09

August.

Apples, 15 bush. at 70 cts.....	\$10 50	
Potatoes, 22 bush. at 75 cts.....	16 50	
Rhubarb, 3 bush. at 65 cts.....	1 95	
Beans, 4 bush. at \$1.00.....	4 00	
Onions, 1½ bush. at \$1.00.....	1 50	
Beets, ¾ bush. at 25 cts.....	19	
Carrots, ¼ bush. at 20 cts.....	5	
Cucumbers, pickling, 5½ bush. at \$1.50.....	8 25	
Peas, 3 bush. at 90 cts.....	2 70	
Tomatoes, 1 bush. at \$1.25.....	1 25	
Plums, 24 qts. at 10 cts.....	2 40	
Currants, red, 4 qts. at 8 cts.....	32	

Currants, black, 9 qts. at 10 cts	\$ 90
Vegetable Marrow, 20 at 5 cts	1 00
Cabbages, 2 doz. at 60 cts	1 20
Cauliflower, 5 doz. at 75 cts	3 75
Corn, 60 doz. at 8 cts	4 80
Raspberries, 183 boxes at 7 cts	12 81
Sundries	35
	<hr/> \$74 42

September.

Potatoes, 22 bush. at 60 cts	\$13 20
Tomatoes, 11 bush. at 80 cts	8 80
Crab Apples, 2 bush. at \$1.50	3 00
Onions, $\frac{1}{2}$ bush. at \$1	50
Apples, 2 bush. at 50 cts	1 00
Pears, 2 bush. at \$1.75	3 50
Carrots, $\frac{1}{4}$ bush. at 25 cts	7
Cabbages, 2 doz. at 60 cts	1 20
Cauliflower, 20 $\frac{1}{2}$ doz. at 70 cts	14 52
Corn, 23 doz. at 8 cts	1 84
Cucumbers $\frac{1}{2}$ doz. at 20 cts	10
Plums, 200 qts. at 8 cts	16 00
Grapes, 304 lbs. at 3 cts	9 12
Vegetable Marrow, 3 at 5 cts	15
Herbs, etc	20
	<hr/> 73 20

October.

Tomatoes, 3 bush. at 60 cts	\$1 80
“ green, 4 bush. at 40 cts	1 60
Beets, 1 $\frac{1}{2}$ bush. at 30 cts	45
Apples, Snow, 24 bush. at 80 cts	19 20
“ Baldwins 8 bush. at 70 cts	5 60
“ Northern Spv, 40 bush. at 65 cts	25 00
“ Mixed, 34 bush. at 50 cts	17 00
Carrots, 4 bush. at 25 cts	1 00
Onions, 4 $\frac{1}{4}$ bush. at \$1.25	5 31
Turnips, 3 $\frac{1}{2}$ bush. at 15 cts	49
Parsnips, 2 $\frac{3}{4}$ bush. at 40 cts	1 10
Citrons, 5 doz. at 70 cts	3 50
Vegetable Marrow, 18 doz. at 60 cts	10 80
Cauliflower, 7 doz. at 60 cts	4 20
Cabbages, 4 $\frac{1}{2}$ doz. at 50 cts	2 25
Celery, 17 doz. at 70 cts	11 90
Peppers, 1 doz. at 15 cts	15
Grapes, 464 lbs. at 3 cts	13 92
Sundries	40
	<hr/> 125 67

November.

Onions, 5 bush. at \$1.50	\$7 50
Carrots, 6 $\frac{1}{4}$ bush. at 25 cts	1 56
Turnips, 2 bush. at 15 cts	30
Parsnips, 2 bush. at 40 cts	80
Salsify, 6 bush. at 75 cts	4 50
Artichokes, 3 bush. at 70 cts	2 10
Beets, $\frac{1}{2}$ bush. at 30 cts	15

Celery, 28 doz. at 70 cts	\$19 60
Cabbages, 3 doz. at 60 cts	1 80
" red, 100 6 cts.	6 00
Herbs, 7 bunches at 5 cts	35
Sundries	40
	<hr/>
	\$45 06

To December the 15th.

Artichokes, 3 bush. at 70 cts	\$2 10
Salsify, 2 bush. at 75 cts	1 50
Celery, 16 doz. at 70 cts	11 20
Cabbages, 1 doz. at 60 cts	60
Onions, 2½ bush. at \$1.50	3 37
Carrots, 2 bush. at 25 cts	50
Parsnips, 1 bush. at 40 cts	40
Turnips, 1 bush. at 15 cts	15
Sundries	30
	<hr/>
	20 12

	<hr/>
	\$636 96
Supplied to Prof. Brown at above rates	87 05
Sold and Cash paid to Bursar	146 62
Turnips delivered to Farm, 1,100 bush. at 6 cts	66 00
	<hr/>

Total	\$936 63
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Inventory—Stock and Implements on hand as per list in Office	\$1,831 25
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Your obedient servant,

JAS. FORSYTH.

PART VIII.

REPORT OF THE PROFESSOR OF DAIRYING.

GUELPH, 1st February, 1887.

*To the Honourable A. M. Ross,
Commissioner of Agriculture.*

DEAR SIR,—I have the honour to submit a brief report of work done in connection with the Dairy Department during 1886.

My duties commenced on 1st April. The time consumed attending conventions and general farmers' meetings in the interests of the dairy industry of the Province, left less time for purely college work and experimental investigation than these matters would otherwise have received.

My trip to England, in charge of Ontario's contribution of butter and cheese, to the Colonial and Indian Exhibition—which mission you were good enough to entrust to me—occupied, with its associated duties, quite three and a-half months of the remainder of the year.

The work done outside, in our own Province, as well as that attended to while abroad, was doubtless valuable to the dairy interests of the country, though the results will not be found tabulated in this statement. For the sake of clearness, as well as for service to those seeking information from this report, it is framed into seven parts.

- I. Creamery Management.
 - II. Dairy Investigations.
 - III. College Lectures.
 - IV. Outside Instruction and Experiment.
 - V. Cheese and Butter from Ontario at the Colonial and Indian Exhibition.
 - VI. The Farming and Dairy System of Denmark.
 - VII. General Remarks and Conclusions.
-

I. CREAMERY MANAGEMENT.

Three objects were sought to be attained in all that was done in connection with, at and for the Ontario Creamery and its patrons. I judge the same three-fold purpose to have been the essence of the Government's intention in the erection, equipment and operation of a creamery near the Agricultural College.

(a) The Government Creamery should have educational value and be of service in that sense to the whole farming community of the Province. The farmers in districts where none have yet been built and where cheese factories are not established, may learn from its reports what to expect in the way of returns from the creamery business, if introduced into their neighbourhood. Its working has been illustrative of the comparative suitability of the two systems of operation—cream gathering, or milk collecting—to different localities.

A study of the matter to follow will yield some reliable information on the details of methods best suited for the profitable handling of milk, cream and butter in the stages of the process of preparation for the market.

Enterprising farmers in backward sections may be encouraged by the measure of its success, in a neighbourhood where dairying had been neglected for the supposedly more remunerative branches of stock-raising and cattle feeding. The success on its own merits of a creamery near Guelph, is evidence that no district in Ontario which has not already a cheese factory can afford to be without the one or the other.

(b) The creamery has been made a school for practical dairy instruction to students. Butter-makers from other creameries may visit it; and all its acquired information is available for the trade.

(c) The Government Creamery affords its patrons no special benefit beyond what may be realized from any joint stock or private concern in any part of Ontario. Those who furnish cream are paid for it, at the price realized from sales of the butter manufactured, after all expenses for cream-gathering, management and labour and furnishings, tubs, fuel, ice, etc., etc., have been deducted. These expenses are kept as low as possible and close economy is practiced in all outlays. Notwithstanding that, the rate of expenses per lb. of butter is very high. The cost of cream-gathering depends so much upon the distance to be travelled for the quantity collected, that the number of patrons and cows within a given area largely determine the rate per lb. For the ground covered, the number of patrons and the quantity of cream supplied were unexpectedly and unnecessarily small. This rate of expense is correspondingly high. Such a difficulty will hardly be experienced another year.

The small number of cows kept by each patron and unfavourably dry weather lessened the supply rapidly after July, while the cost for gathering remained at a fixed sum per day.

At a public meeting of the patrons, held before the creamery opened for the season, an advisory committee of five gentlemen from their number was appointed. This committee has been helpful in the satisfactory conducting of the business. Its members have been consulted as to times for selling and prices at which to sell the butter. The committee has by its judicious advice made the task of running the creamery on a sound business basis, much easier of accomplishment. People look for so much more from any Government institution than from a private business concern.

The agreement with the patrons was to the effect that they were each to receive after the end of each month a cash advance on cream supplied at the following rates:—

For May—14c. per lb. of butter yielded.

" June—14c.	"	"
" July—14c.	"	"
" August—14c.	"	"
" September	} 15c.	"
and October		

After paying these prices and providing out of the receipts from sales of butter for all expenses, including \$325.00 to the Government for the management and the partial

use of one horse, there is a balance on hand of \$601.18, which is still due, and will be distributed to the patrons.

SUMMARY.

<i>Receipts.</i>		<i>Expenditures.</i>	
Total value of butter.....	\$10,322.71	Total cash to patrons for cream.	\$7,274.97
Total sales of buttermilk and profit from feeding buttermilk	322.63	Cream-gatherers	1,235.16
		Management and labour	750.46
		Furnishings, Marine Insurance and Incidentals	783.57
		Balance due patrons	601.18
	<u>\$10,645.34</u>		<u>\$10,645.34</u>
Butter manufactured			50,281 lbs.
Number of gauges of cream received, (4 gauges to each inch; diameter of the can used $8\frac{1}{2}$ inches)			413,210
Number of gauges of cream per lb. of butter			8.21
Average price per lb. of butter			20.53 cents.
Number of patrons			152
Number of days in operation			118
Seven routes were taken up. Average distance for each round trip, about			22 miles.
Cost of gathering cream	2.45	per lb. of Butter	
Cost of management and labour	1.49	"	
Cost of furnishings, etc	1.56	"	
Total cost for expenses	5.50	"	
Receipts from buttermilk account .....	.64	"	
Net cost for manufacturing	4.86	"	

I offer a few explanatory remarks on these facts.

The plan followed was that of collecting the cream only. The plain shot gun can, with side glass and measuring gauge divided into quarter inch markings, was used. The cream was gathered only every second day. The quantity of cream was reckoned by the gauges shown before the skimming was commenced.

Every other day's skimming was performed by the patrons, to permit them the use of the skim-milk every day for feeding calves. The average quality of the season's cream was below the standard for butter production. That was mainly due to the too early skimming of the cream.

A commencement was made to test the comparative value of each patron's cream. Samples were regularly and systematically collected by the cream gatherers. These samples were examined by the usual oscillating test-churn; but as all the samples were in various conditions of ripeness, with widely different degrees of acidity, the results were not accurate nor exactly reliable. So impractical, in our case, were the results considered, as a basis for adoption as the paying standard, that they were abandoned after the end of July. There is a very great difference between the fat qualities of some samples of cream. Cream itself bears no unvarying ratio to the quantity of milk from which it is taken. It may be defined as merely a portion of the milk into which the fat globules have been gathered in a comparatively large per cent. Sometimes seven-eighths of the whole butter-fat contained in the milk may be collected into a cream not measuring by bulk more than one-twelfth of the whole volume of the milk, while one-third of the bulk of the same milk might be separated as cream, and then contain exactly seven-eighths of the whole butter-fat of the milk. We are behind, in not having in use an efficient, easily-practicable,

accurate and reliable method of testing cream. Some attention has been paid to the lactoscope. It is valuable in examining sweet creams, but is altogether unsuited to the testing of cream even slightly sour. It is thus ruled out of everyday use in creameries collecting cream every second day. The ether-test has been found expensive and wanting when measured by the needs of the ordinary, or extraordinary, butter-maker. The centrifugal test is unworkable with sour cream.

The oil test churn is apparently the best apparatus so far invented for the purpose. Every creamery should have some method of making such tests; and payments for cream should invariably be made according to *quality* and quantity. The Ontario Creamery can seek no credit for taking the lead in this matter. For the coming summer I hope to see an oil-test churn in steady and satisfactory use.

The butter market has shared in the depression of prices for all farm products. The price realized—rather more than 20½ cents per lb—may be considered rather under than over what might be reasonably expected as the average for the next 5 or 10 years. The butter was sold at four times during the season, as soon as sufficient for economical export shipment was made.

By reason of the unfavourable conditions already mentioned—dry weather, etc.—the advisory committee recommended that the creamery be closed after the end of September; hence the short season—118 days—of operation.

The causes for the to-be-regretted high rates per lb. for cream gathering, etc., have already been discussed.

The receipts from butter-milk account were largely from sales for delivery in Guelph city, for house and bakers' use.

The butter was salted during May, June and part of July, at the rate of 1 oz. of salt per lb of butter. During the remainder of the season, ¾ oz. per lb was used.

A series of tests with different brands of salt—English and Canadian—was undertaken. These will be described under the head of Dairy Investigations.

The butter was packed for the most part in tin-lined tubs. This was done in compliance with the request of the customer in Scotland who purchased the bulk of our make. Satisfactory reports were received from the buyer.

Our butter-maker, Mr. McHardy, is to be commended for his skill and care in the making of the butter, as well as for the interest taken in giving the students practical instruction in the creamery.

The cold storage-room is not large enough. Advantage was taken of the College cellars for storing part of the butter.

The lower the temperature of the room in which butter is kept—if that be above freezing point—the better will the butter keep while there, and the better will it keep when brought into the warmer temperature of the English warehouses. The same conclusion is applicable to its treatment for shipment and during transit. Therefore, every creamery should have, as part of its buildings, sufficient and suitable cold-storage for its make of butter. College or other convenient cellars are not adjacent to nor available by most creameries.

Before comparing the returns to the average farmer's from the cream supplied to a creamery, with those realised from home butter-making, let me point out a leak entailing serious loss upon those supplying cream who do not make adequate provision for the proper care of their milk for cream separation.

During the month of August, I visited the farms of a large number of the patrons, and by measurement and calculation learned that on the average, 33 lbs. of milk were taken to yield enough cream to make 1 lb. of butter. During the same period by the ordinary 12 and 24 hour setting in ice water, 28 lbs. of milk yielded sufficient cream to make 1 lb. of butter. Had the same milk been used with the centrifugal separator, 26 lbs. of milk would have given as much cream as would have given 1 lb. of butter.

From these figures it follows that by the ordinary and very insufficient care given to the setting and cold-keeping of their milk by patrons, the butter yield was 3.03 lbs. butter per 100 lbs. milk.

By ordinary setting in ice water the yield was 3.57 lbs. butter per 100 lbs. milk.

By use of centrifugal separator, 3.85 lbs. butter per 100 lbs. milk.

From these facts it will be seen that the increased yield of butter from a given quantity of milk, set in ice water, is 17.8 per cent. on the quantity realized by ordinary practice. The increase by the use of the centrifugal separator over ordinary practice would be 27 per cent. The increase by use of centrifugal separator over setting in ice water would be 7.8 per cent. Hence, where cream only is supplied to a creamery, every patron should provide for use a liberal supply of ice.

The larger returns in butter from the centrifugal separators point to an advantage from their use where the increased cost of drawing the whole milk and returning to the farms the skim-milk would not more than equal the value of the increase of butter realised.

As this is a live question for those interested in the starting of new creameries, I state four points for consideration in connection with the facts of circumstance in every locality.

- (1) Proportion of cream separation that may be effected.
- (2) Effect of the process on the quality and condition of the cream.
- (3) Effect of the process on the quality of the skim-milk.
- (4) Costs.

In connection with (1) the above stated ratio of separation may be taken as reliable.

(2) Where cream has to be carried a number of miles during hot weather its condition and quality are not as good for butter-making as where the separation is effected at the creamery.

(3) For profitable calf feeding the skim-milk must be sweet. Both processes, when well managed leave it at the farm in that condition.

(4) Under the head of "Costs" are to be compared; cost of machines and pails; cost of maintenance; expense of operation against increased cost for collecting milk over cream; saving in expense and labour in setting and caring for the milk at the farm.

The foregoing information should enable those interested to intelligently decide for themselves which plan to adopt. This general guiding conclusion may be added, where a small quantity of milk is available, and then only by collecting from long distances; the setting plan would be more economical; but where a large supply of milk may be obtained within a small area, the centrifugal plan will be most profitable.

In pointing out the advantage to the farmers of the creamery system of butter-making over the plan of home butter-making, I have little to say about the character and reputation of the average Canadian dairy butter. As many farmers' wives aver—and of course the farmers peacefully agree—it may be just as good or better than creamery butter when it leaves the churn, but the awkward and unfortunate fact still remains, that whereas the average price of creamery butter in Ontario during '86 would be about 20 cents per lb., the average price for dairy butter, made during the same months, was only 13 cents per lb.

In each neighbourhood of, say, ten miles square, over 300 farmers might as well be supporting a creamery at some central point, or two creameries at convenient centres, with the milk of 1,800 cows. If each cow yielded, during the summer, enough milk to make only 100 lbs. of butter (and with proper feeding and care during winter, spring, summer and fall, they would give at least 150 lbs.), the product from these 1,800 cows would bring just \$12,600 of more money into the neighbourhood through the creamery, than by the ordinary home methods of making and marketing. Every farmer would get his own share of the increased returns and his family would be spared the taxing work of butter-making during the hot summer months. Then the extra attention paid to dairying would result in the cows being better and more economically fed; more milk would be produced at less cost; the coarse grains would be mostly consumed on the farms; increased fertility of the fields would follow; the better condition of the skim-milk would make possible the rearing of more stock with more profit. How that may

best be done will be discussed under heads II. and VI. of this report. The destiny of profitable farming in Ontario will be found along the line of careful, economical and progressive dairying, and the sooner Canadians recognize the fact and shape their plans and course accordingly, the sooner will there be no occasion for complaint of "hard times."

II. DAIRY INVESTIGATIONS.

That the results of enquiry, observation, investigation, experiment and study may have the largest practical value, these should be carried on and out according to a systematic plan. The student in every line of science and practice will occasionally stumble into acquaintance with an unexpected fact, the knowledge of which will be serviceable. But in a field where so many painstaking scientists have ploughed and searched so long and thoroughly as that of dairy science it was not to be expected that one season's working would turn up much absolutely new. The plan laid down for guidance here during 1886 was made for the purpose of making accessible and acceptable to the general farmer such information, as would enable him to put into immediate and profitable practice better methods of managing the cows he already owns, the fields he presently tills for their feed, the milk he handles, the calves he tries to rear and the hogs he feeds on the products of his dairy. One summer's trial would be but a very inadequate experience from which alone to draw conclusions for the guidance of Ontario farmers. Hence I have not hesitated to supplement the information gained this season, by that formerly acquired by years of practice in dairy work, as well as by that available from the investigations of other reliable dairymen before framing any conclusions for publication. Four divisions will be made for the sake of plainness.

- I. The management and feeding of milking cows.
- II. The handling of milk.
- III. The rearing of calves.
- IV. The disposal of the by-products by hog feeding.

THE MANAGEMENT AND FEEDING OF MILKING COWS.

Twelve ordinary cows such as might be obtained from almost any six farms in the Province were purchased. They were bought in the open fair. In passing I cannot suppress the thought that the fair is still too often used as a dumping place on which to weed out the poor milkers merely to have them transplanted to some other farm. Let every dairyman weed out his poor unprofitable milkers by fattening for the butcher and not by selling into another herd. The perpetuation of every kind of farm weed is a practice from which, all round, we are happily becoming free. In selecting a cow for milking purposes, a careful observation of certain "points" will guide the buyer in making a good choice. Where a reliable record of the animal's past performance may be examined, it is of unquestionable use in estimating her milk-producing value. Descent from stock with creditable records is of much worth. But so much depends upon the individuality of the animal that the values just mentioned can best be rated in conjunction with their apparent evidences in her body.

When buying cows on a fair ground the animals have to be taken for what they are worth by appearance. There are some general characteristics peculiar to all animals of individual merit in all the milking breeds; a course, rough bullish appearance is *not* one of these. Size is a matter of secondary consequence. Temperament is a matter of prime importance. Cattle as well as horses may be classified in temperament as nervous or lymphatic.

The "nervous" in the cow is indicative of good milking power; in the horse it is associated with speed and action. The "lymphatic" in the cow means a tendency to lay on beef; in the horse it stays with draught and heavy weight.

Milk and butter are essentially the products of nervous force. Hence a good milker should have abundant nerve power. That does not necessarily imply nervousness. Her organs are to be considered merely as so much nervous machinery for the accomplishment of a given end. The purpose of her life is to make the largest possible quantity of the best milk out of the least possible consumption of food. That faculty will generally reveal itself in what are called the "points" of the animal. Specifically these might be described in the following order, which begins with the head and follows around the outline of the animal's body as viewed from the side. The ideal cow should have a broad forehead, a wide poll. The seat of nervous power is in the brain and the room for that organ should be ample. Her eyes should be prominent, bright, and mild looking. All the better is the indication if they stand out so well as to give the face a dished shape—the hollow up and down the face. Such eyes promise nerve power if their owner be well used. A broad muzzle is a good point. Fairly large and open nostrils should be looked for; but a cow with constantly gaping nostrils is a little too expensive to keep. The face should be rather long, lean, and clean cut. An instructive model for comparison is the face of the blood horse. Waxy smooth horns and fine ears usually accompany the delicately yet strongly-strung nervous organization we seek. The head will be small in proportion to the weight of the body and tapering in fine lines. The neck should reveal a strong jointure between the backbone (containing the spinal cord) and the skull. There is a large nervous connection from the spine to the uterus and the udder. A fine tapering neck, with no superfluous flesh, is a desirable point. The top of the shoulder had better be sharp than broad. In a young cow a hollow back is often indicative of weakness. A slightly arched or straight back is preferable. The loin should be wide, flat and thin. The pelvis—the boney frame-work whereby the hind legs are attached to the backbone for locomotion—should be broad, large and somewhat arched. A hollow pelvis is the omen of danger from milk-fever or an early breakdown. The ham will be in-sloping and in-hollowing, leaving lots of udder-room. The shape is merely indicative of the tendency of the animal. The pitch or symmetry of the udder's shape may be ignored except in the case of a "fancy" animal. The surface extent of the udder's attachment to the body is all important. It is generally a measure of the arterial and nervous activity in the milk-secreting glands. Taking a side view of a cow in full milk, the line of connection or the line of absorption will be the direct measure between the upper and lower points of attachment between the udder and the body. The longer that line is the better is that "point." A fleshy udder is not wanted. The milk veins are mostly in size and prominence proportionate to the flow of venous blood from the udder, consequently the larger the better. Good barrel room is required to hold and permit of the proper digestion of abundance of suitable feed. In such a cow the energy of digestion is allied to the energy of milk secretion. The chest should be deep, leaving full play for the heart and lungs,—these vital organs for blood-circulation and purification. Good blood promotes the activity and energy of the nervous system and thus stimulates the secretion of milk. Many other "points" might be mentioned, some of them important, such as a soft, mellow skin, fine silky hair, etc., but enough has been written to help the ordinary farmer in the selection of a good milker. The form of a good milking cow might be briefly described as tending to the wedge-shape from three points of view: as looked at from the front, rather sharp on the top of the shoulder and widening to the chest; as looked at from behind, along the back, broad and wide across the pelvis and narrowing towards the shoulder; as seen from the side, deep from the back to the lower line of the udder and lighter in the forequarters.

When the twelve ordinary cows were bought, as many of these points as possible were sought for in each one. They were, with one exception, in poor condition as to flesh. The eleven had calved within a fortnight prior to the 24th of May. From the 25th May till July 7th, they each received 4 lbs. of wheat bran per day, besides the fair grass of a common pasture field, part of which was still bush. During that period, the average milk yield per day was 34½ lbs. per head. They were milked regularly between the hours of five and six o'clock in the morning and evening, in a stable. They had free

access to pure water and salt. From July 8th to July 20th, each cow received 2 lbs. of bran in the morning and a feed of fresh cut oats and vetches in the evening. By this time the grass had become comparatively bare and dry. The average yield per day during these thirteen days was 28 lbs. per head. These returns were not at all surprisingly large, but taking into account the poor body condition of the cows, they show what may be expected from ordinary Canadian cows when kindly cared for, regularly milked and supplied with the most economic feed. The supplying of bran as a supplementary feed, when the early grass is rank and watery, and when the pastures fail from drought, is a profitable plan for increasing the milk yield. It most satisfactorily takes the place of supplementary green feed, and saves the troublesome and expensive work of handling so much weight. The cost involved in the labour of partial soiling in early summer and autumn is the only objection to undertaking it and recommending its general adoption throughout Ontario.

On July 21st the cows were divided into three groups. No further bran was allowed. Group No. 1 had no feed besides the grass on the pasture field. Groups Nos. 2 and 3 received a feed of green oats and vetches just before milking, morning and evening. The first result apparent was an immediate loss in the weight of milk from group No. 1, equal to 16 per cent., and from groups 2 and 3 of 7 per cent. The feeding was continued in the same way till July 30. The average loss in weight of milk from the average of the previous eight days was—

Group No. 1 (no extra green feed)	16.6 per cent. loss.
Group Nos. 2 and 3 (extra green feed)	12.2 " "

From July 31 to August 7, groups Nos. 1 and 3 received a supply of the same formerly mentioned kind of green feed, while the cows of group 2 had only pasture with the others.

Group No. 1 showed an immediate gain of 9.7 per cent. by weight.
" " 2 no appreciable change " "
" " 3 " " "

On the period of eight days,

Group No. 1 showed an average gain of 9.3 per cent. by weight.
" " 2 no appreciable change " "
" " 3 " " "

From August 8th to August 15, groups Nos. 2 and 3 received a supply of the same kind of supplementary green feed, while the cows of group No. 1 had only pasture with the others.

Group No. 1 showed an immediate loss of 14.3 per cent. by weight.
" " 2 " " gain of 14. " "
" " 3 " no apparent change.

On the period of eight days,

Group No. 1 showed an average loss of 3 per cent. by weight.
" " 2 " " gain of 4.4 " "
" " 3 " no appreciable difference "

After August 16th, all the cows were fed green corn stalks twice per day.

The conclusion has been drawn from other data, and with it the foregoing figures agree that a frequent change of feed during summer, even a change of pasture fields, will largely increase the flow of milk.

The extra yield of milk, from feeding supplementary green feed, will largely pay for the extra cost at the time, but the keeping of the herd up to a full flow while the pastures are bare, will enable them to give a much larger yield when feed is abundant on the stubble fields and aftermath.

The changes of feed had some uniform influence on the quality of the milk for butter-making. There was no perceptible difference in the milk to the taste or smell. The milk (from each group) was accurately weighed, set in deep setting pails, in ice water, at an average temperature of 86° Fahr. It was cooled to an average temperature of 40° Fahr. The skimming was performed after the lapse of about twenty-two hours. The cream was ripened and soured in the usual way, and after each churning the weight of salted butter (1 oz. salt per lb. of butter) was recorded. Over thirty analyses were made, and the following table shows the differences attributable to the use or absence of supplementary green feed :

	Lbs. of milk per lb. of Butter.	Lbs. of milk per inch of cream in a can 8½ in. diam.	Lbs. of butter per 100 lbs. milk.	Per cent. of fat in Skim milk.	Per cent. of fat in Buttermilk.	Per cent. of other solids in Skim milk.	Per cent. of other solids in Butter-milk.
Average results from milk when no supplementary green feed was supplied.	26.34	12.79	3.82	.514	.996	8.91	7.14
Average results from milk from same cows, during same total period, when green feed was supplied as before described..	25.47	12.61	3.95	.506	.748	8.84	7.75

It will be seen that while there is hardly any chemical difference in the composition of the whole milk (butter, fat and solids in skim-milk and buttermilk) from the two treatments of cows, there is an appreciable commercial difference in the readiness with which, under similar treatments of milk, the green feed milk yields its fat to the butter-maker. The supposition that when cows were given an extra supply of succulent feed, and gave a larger quantity of milk, that it was therefore poorer in quality as to per cent. of solids, has no foundation in fact. The larger the quantity of milk a cow can be made to give on suitable feed, the more the milk is worth per 100 lbs. When just made the butter from both qualities of milk seemed equally good. It is being kept to note the effect of age on its keeping properties.

For many years it has been recognised by observant and thoughtful dairymen that when milking cows were denied access to salt, the quantity and quality of the milk yield was at once affected. A little investigation, more to define into accuracy the facts known than to bring to light any new ideas, was undertaken with eleven of the cows already mentioned. Until August 15th these cows had access to salt at will in their pasture-fields. Then all salt was removed from places within their reach. Small boxes were procured for attachment to the mangers of the stable in which the cows were tied twice a day for milking. The cows were divided into four groups. Groups 1 and 2 (five cows) received no salt. In the boxes before the six cows of groups 3 and 4 a supply of common barrel salt was placed. No change was made for twelve days. Then salt was placed before the three animals of group No. 1, and still continued the three animals group No. 4. No salt was allowed to groups Nos. 2 and 3. This treatment was continued for a like period. The cows of group No. 4 could take as much salt as they liked twice a day during both periods. In every other respect all the cows received similar treatment. The feed was pasture as before mentioned, supplemented now by a feed of green corn fodder twice a day.

The following are the results from the observations and record : The average immediate loss (taking a period of two days after each change) was 17½ per cent. in the weight of the milk yield when salt was withheld. The average total loss in the weight of milk yield from the eight cows of groups No. 1, 2 and 3, which were insufficiently or irregularly salted, was 14½ per cent. for the whole period. There was no loss in the

weight of the milk yielded from cows of group No. 4, which had access to salt daily during the same period.

It was required that I should leave for England before the experiment was nearly completed. Still, I am safe in drawing the conclusion that the irregular and insufficient salting of cows is a cause which lessens their production of milk. Just *how* the cause brings about the result I do not yet know.

The quality of the milk as to its constituents and condition was examined. Cans of milk from the cows taking salt, and from those from which salt had been withheld, were placed under like conditions. The milk was set as usual for cream. Then after twenty-four hours it was exposed to the ordinary temperature of the room, about 65° Fahr. The milk from the cows not receiving salt was perceptibly sour to the taste and smell 24 hours sooner than that from cows taking salt. Moreover, an easily distinguishable difference in the flavor and "fullness" to the taste in favor of the salt-used samples was at once detected by all to whom the comparison was submitted. The conclusion drawn is, that the irregular or insufficient salting of cows leaves their milk not so easily kept sweet for supplying to cheese factories. The further examination and analysis of the milk was prevented by my absence at the Colonial and Indian Exhibition.

For butter making the observed result may be seen in the following table. The milk was set as formerly at an average of 86° Fahr, and cooled to under 42° Fahr. Both kinds were treated alike as to daily temperature and time set.

	Lbs. of milk per lb. of butter.	Lbs. of milk per inch of cream in can 8½ in. diam.	Lbs. of butter per 100 lbs. of milk.
Average results from milk when cows had access to salt regularly.....	29.67	14.58	3.37
Average results from milk when cows had no access to salt for periods of 12 days.....	30.7	14.48	3.26

The cows having a continuous supply of salt consumed on the average one-quarter pound per head per day. The exposure of rock salt to milking cows is evidently not sufficient. The cow's palate may be readily satisfied before she has licked off enough for her systems' needs. The cows from which salt had been withheld for twelve days were too greedy for it when supplied. They each licked enough to make their milk taste salty. The preferable plan, and one which leaves forgetfulness less wasteful, is to have a protected trough or salt-box from which the animals may help themselves as disposed.

An abundant supply of water—and pure water only—should be where milking cows may drink freely twice or three times a day.

Milk is so much the product of nervous operation that any undue excitement, no matter how induced, lessens the milk supply and injures its quality. The kind and gentle treatment of his cows by the sensible dairyman is one source of his profit.

The average yield of the eleven cows that milked during the whole period was 3,264 pounds of milk per head in 117 days, notwithstanding the changeful usage already referred to. Were the present herds of milking cows in Ontario but properly stabled and fed and watered and salted and handled, there would be an immediate increase of not less than 25 per cent. in their milk returns, and that at no extra cost to their owners.

THE HANDLING OF MILK.

The subjoined bulletin was issued early in the season :—

Agricultural College—Bulletin II.

Points for the attention of the patrons of cheese factories and creameries :

The business of dairying when intelligently and carefully followed insures to the farmer a safe and steady income. The Province of Ontario is favored with all the natural

advantage needed for the production of cheese and butter of the finest quality ; and as the permanent success of the dairy industry depends upon the quality of the product, every dairy farmer is or should be interested in its improvement. To help in that direction is the purpose of this bulletin. In producing and supplying milk to cheese factories and creameries the following points require attention in order that the best results may be obtained.

General Rules.

1. Milk from healthy cows only should be used, and not until at least four days after calving.
2. Any harsh treatment that excites the cow lessens the quantity and injures the quality of her yield.
3. Cows should be allowed an abundant supply of wholesome, suitable food, and as much pure water as they will drink.
4. A supply of salt should be placed where cows have access to it *every day*.
5. Cows should not be permitted to drink stagnant, impure water, nor to eat cleanings from horse stables, leeks, turnip tops, or anything that would give the milk an offensive taint.
6. All milk vessels should be thoroughly cleansed ; first being well washed, then scalded with boiling water, and afterwards sufficiently aired to keep them perfectly sweet.
7. Cows should be milked with dry hands, and *only after* the udders have been washed or well brushed.
8. Milking should be done and milk should be kept only where the surrounding air is pure and free from all objectionable and tainting odors. Milking in a foul smelling stable or yard imparts to milk an injurious taint. Sour whey should never be fed, nor should hogs be kept in a milking yard nor near a milk stand.
9. Tin pails only should be used.
10. All milk should be properly strained immediately after milking, and for that purpose a detached strainer is preferable to a strainer-pail.

For Cheese Factories.

11. In preparing milk for delivery to a cheese factory it should, immediately after straining, be *thoroughly aired* by pouring, dipping, or stirring. This treatment is as beneficial for the morning's milk as for the evening's, and is even more necessary when the weather is cool than when it is warm.
12. In warm weather all milk should be *cooled* after it has been aired, but not before.
13. Milk kept over night in small quantities—say in tin pails—will be in better condition than if kept in larger quantity in one vessel.
14. When both messes of milk are conveyed to the factory in one can, the mixing of the morning with the evening's milk should be delayed till the milk-waggon reaches the stand.
15. While the milk is warmer than the surrounding air it should be left uncovered, but when colder it may with advantage be covered.
16. Milk-pails and cans should be protected from the rain, and milk-stands should be constructed to shade the cans from the sun.
17. Only honest milk with its full cream and full share of strippings should be offered ; violation of this requirement leaves the patron liable to a heavy penalty.

For Creameries.

18. In preparing milk for delivery once a day to a creamery where the whole milk is received, the treatment should be similar to that recommended for cheese factories.

19. For creameries receiving cream only, the milk should be well aired but not cooled before setting.

20. Milk should be set for the separation of the cream where no impure air will reach it.

21. Cream rises best with a falling temperature, and the separation of cream from milk is promoted by cooling, after setting, to at least 40°.

For Butter-Making at Farm Dairies.

22. When the cream is used for butter-making at the farm the foregoing treatments and conditions may be observed with profit.

23. Good ventilation for a milk-house, milk-cellar or dairy-room, is most essential, and may be provided for by leading an air-drain underground, for say 200 feet. Through it a supply of pure, fresh, cool air may be admitted. The foul or warm air may be allowed to escape through ventilators or windows in or near the ceiling.

24. Cream should invariably be removed from the milk before the milk is sour.

25. The cream for each churning should be gathered into and kept in one vessel.

26. The whole of the cream should be well stirred every time fresh cream is added.

27. In summer cream should not be left longer than three days before churning.

28. The best churning temperatures are between 57° and 60° during the summer, and between 60° and 64° during the winter.

29. Butter can be more thoroughly washed free from butter-milk while in the granular condition than after it is gathered or pressed into a roll.

30. Only the best pure salt of medium and uniform fineness of grain should be used, and from three-quarters to one ounce of salt per pound of butter will be found satisfactory for the summer.

31. The utmost cleanliness in milking, in vessels, in utensils, and in all surroundings must be observed to preserve the flavor and body of milk, cream, butter and cheese from contamination.

A Dairy Class.

A desire has been expressed for the formation of a Dairy Class, to be trained in butter-making at the Ontario Creamery during the forenoon, and to receive general instructions in dairying in the lecture-room during the afternoon. September would be the most suitable month. Farmers' sons and daughters and others proposing to attend will please address the Dairy Department, O. A. C., Guelph. No fee will be charged. Let applicants write soon.

Enquiries on matters pertaining to the dairy industry of the province, addressed to the undersigned at the Dairy Department, Ontario Agricultural College, Guelph, will receive attention.

JAS. W. ROBERTSON.

Later researches during the summer have but confirmed the correctness of each of the thirty-one points mentioned. To elaborate each paragraph would fill the pages of a large volume. Some examination was made of the temperature conditions most suitable for cream-raising. These have been partly presented and discussed under the head of Creamery Management. It was found that practically as full a separation of cream was effected by setting at any temperature between 85° and 98° Fahr., and then causing the temperature to fall to 40°, as by setting at 98°, and then causing the temperature to fall to the same point.

Samples of cream were churned at six different degrees of ripeness or sourness. The butter-milk was analyzed to discover the comparative effectiveness of the churning operation.

The following table shows the average per cent. of fat left in the butter-milk from cream in different stages of maturity. No. 1 represents the average from creams churned sweet, and No. 6 the average from creams churned quite sour. The degree of ripeness or perceptible acidity was gradual from No. 1 (sweet) onward to No. 6 (sour) :—

	Per cent. of fat left in Butter-milk.
No. 1.....	5.255
2.....	3.101
3.....	3.344
4.....	2.542
5.....	1.019
6.....	.739

These per centages of fat left in the butter-milk prove nothing absolute about the quantity of fat necessarily left in butter-milk.

The effectiveness of the process depends so much upon the construction, the motion, and the speed of the churn. But as the churning treatment in all these cases was similar, the varying percentages of fat left in the butter-milk were solely due to the condition of the cream.

Sour cream will yield its butter, by churning, in less time than sweet cream, other conditions being alike.

Besides the instructive fact, apparent on the face of the table, this may be learned : The mixing of creams of different ages and acidity together, just before churning, makes large loss of the butter-fat in the butter-milk unavoidable.

To points 25, 26, and 27 of the Bulletin, this may be added : The best method of preparing cream for churning is to have the whole cream kept cool and sweet till about twenty-four hours before the churning. Then add to it about two per cent. by bulk of cream that has been raised, exposed to pure air, and afterwards kept as warm as 70° Fahr., to promote souring. The best kind of fermentation, resulting in sourness, is thus induced, and all bitterness in flavour and loss of fat are avoided.

A series of tests, to throw light upon the comparative values of the Canadian and English brands of dairy salt in butter-making, was undertaken.

Some forty-five tubs, salted from 1 oz. per pound to $\frac{1}{2}$ oz. per pound, are still on hand.

The matter of salting butter and the salt interests involved, are so important that this Department looks for the assistance of a committee of experts from the Creamery Association of Ontario, in judging of the present qualities of the butter, after having been kept for five months. A bulletin will be issued, stating the conclusions reached after such judging has been completed. Meanwhile a general standard, whereby to select a salt for butter-making, may be presented :

1st. The salt should be pure and clean.

2nd. It should be easily dissolved and not hard in the crystal from roasting.

3rd. It should be of medium fineness, and nearly uniform in the quality and size of its grains. If it be pure in composition, a salt with a velvety body to the touch is well suited for use in butter.

The addition of coarse, hard salt to butter not only injures its grain in the working, but remaining undissolved, is easily recognized by the *touch* of the butter trier, or tongue, as well as the *taste*. When such is the case the value is very much lessened, especially in the British market.

THE REARING OF CALVES.

Eight calves were reared on skim milk and supplementary feed after they were a fortnight old. They were sold for further rearing to a neighbouring farmer. The value

realized for the skim milk was slightly under two and three-quarter cents per gallon. That need not be accepted as applicable to all calf-feeding. According to conditions of stock and market, it may be more or less. This much is assured: fine, thrifty, healthy, and large calves can be reared without whole milk after they are two weeks old.

Following the style of communicating information already adopted in this Report, permit me to gather into a chapter of instruction and advice the knowledge on this subject, gleaned from experience during the past and previous years:—

The “heredity” and “individuality” of the farmer have more to do with the successful raising of profitable milking cows for his dairy, or steers for his stalls, than the “pedigree” of his herd.

Breed and blood are of much service to the stock-raiser. So are a good steam boiler and engine to the grain thresher. What fuel and oil are to the latter, feed and care are to the former. A good thresher with good fuel and skill, will get more efficient work out of a poor boiler and second rate engine than a shiftless, careless engineer will get out of the best machinery.

As a rule there is no profit in trying to raise the late calves. In any case the calves from the best milking cows only should be selected for rearing. The herd bull should have a pedigree linking him to a family distinguished for milking qualities. If a calf with a big body at one, two, three, or six months old be what is wanted, it had better be allowed to suck its dam. But if a calf, leaving a large profit on its rearing at two years old, and a large profit on its milking, or fattening be the object sought for, then it should be reared the other way. Where the calf is allowed to suck the cow, for even a few days, the cow is in a less contented condition of nerve to yield her milk to the hand for some weeks. The restlessness thus caused will tend to the lessening of the milk yield in most cases. The task of teaching the calf to drink is doubly difficult after it has acquired the habit of getting its supply in the natural way. Invariably where a calf has been permitted to run with its mother for ten days, I have found it to go back, or at least fail to gain in condition for a fortnight or more, when a change was made to hand feeding. The checking of its growth and thrift at that early stage in its development, entails more loss of possible profit in after years than a partial winter's starvation when eighteen months old. The organs of digestion, whose function it is to get for the animal all possible good out of its food, for maintenance, growth, beef, milk, or work, can never be injured with impunity. The treatment from the day of birth should be to preserve and, if possible, improve the assimilating power. Milk from the first six milkings of the mother should be fed to her calf three times a day. The first milk, “colostrum” or “beastings,” is of medicinal as well as food value to the young calf. For two weeks the calf will not need nor take much besides the two or three quarts of whole milk of each feed. The milk should be fed as near the blood temperature, 98° Fahr., as practicable. After the lapse of a fortnight a gradual change, during the third week, may be made from whole milk to sweet skim milk. Such a change can be best effected by putting skim milk in gradually increasing quantity with the whole milk till it is wholly substituted for it. The skim milk should always be fed *sweet*. The sourness of milk is evidence that some of the feeding value of its large per cent. of sugar of milk has been lost by the change into acid. Besides, the sourness renders the food unsuited to the stomach of a yet tender calf. Sour feed in such a case favours growth in but two ways. The calf so fed will develop marvellous girth extension. “Pot-bellied” is hardly sufficiently expressive of the chronic enlargement from that cause. Then the growth of hair is effectually and speedily promoted. It becomes so strong in “stalk” that it stands out in daily protestation against that kind of feed. The skim milk should also be fed warm. The blood heat is the best: Where no better convenience exists for the heating of the milk, hot water may be added with advantage. A feed of ice-cold milk, such as comes from the deep setting cans—by the use of which fine dairy butter can be most economically made—will leave the calf uncomfortable. That is but the evidence that indigestion exists. It may easily be made partially permanent by a continuation of such injurious treatment. The power and practice of digesting and appropriating all that is possible out of its feed should be encouraged into a fixed habit, by giving the young animal only suitable feed in the best condition of

preparation. These points about the feeding of skim milk will apply to young pigs as well as calves. A gutty, thriftless hog is the necessary product of a careless and wasteful mode of feeding even excellent skim milk.

To make up for the fat taken out of the milk in the shape of cream, some supplementary feed should be given with the skim milk: Linseed, oil-cake, bran, oats and peas are all good. Bran is frequently mixed with chopped oats and peas, and fed raw in the milk. That practice is most objectionable, and frequently results in the loss of the full value of the grain fed, besides inflicting injury upon the calf by scouring. The better plan is to put the bran and chopped oats and peas, with linseed in a dry state, into a box conveniently placed within reach of the calf. Between the ages of one and three weeks most calves will begin to eat the mixture. The chewing necessary to a comfortable swallowing fits the feed for proper digestion, and prevents all risk of scouring from that cause. The chewing also favours the free flow in the mouth of a good deal of saliva, needed to thoroughly digest the milk gulped down so hurriedly from the feeding pail. Linseed and oil-cake may be boiled, or well scalded, and mixed in a syrupy state with the milk. Such preparation means time and trouble. Equally good results follow from the feeding of both, in the raw and dry state with the mixture of bran and chop. They should first have been ground very fine. The composition of the additional feed should be about equal parts by bulk of bran, oat, and pea chop, with a teacupful of ground linseed to each quart of the mixture. No fixed quantity per head for feeding need be mentioned. It has been found desirable to allow the calves to take as much as they care to eat. Handfuls of the best hay—and all hay for fodder should be cut on the green side—may be offered, and most calves will eat with relish at a month old. As soon as grass can be got it should be given in liberal quantity.

Opinions differ as to the relative advantages of keeping calves in the stable all summer and allowing them the run of a small pasture field. A grass plot with no shade from the sun, and where flies are numerous and diligent, is not the best place for calves. But if the calves be kept in a dark cool stable during the hot days of "fly time," and turned out for the evening and nights, the protection of the soiling system will be coupled with the benefits of exercise and feed outside. Some farmers report very satisfactory results from adding pulped turnips to the forementioned grain mixture from the time the calves are three weeks old. No matter where fed—in the stable or out—each calf should receive only its own allowance of milk. The distension of stomach by overfeeding is very harmful. The old-fashioned implements for the feeding of six calves in the field, being but three buckets and one big stick, had better be exchanged for more sensible and economical conveniences. Outside feeding from a trough is unsatisfactory, as the big and greedy calves get more than their share, while the weaker ones get barely enough. The construction of small stalls for the calves against a fence in the plot will make it easy to give every calf its own share in its own pail, and successfully avoid the respective risks of gorging and starving.

Calves reared in this way will gain in size and strength of constitution all spring and summer and autumn. When the severe weather of late fall and winter comes, it finds these calves accustomed to live mainly on grass and dry chop feed, so that the change to stable and winter conditions of existence is not very trying. The best conditions for profitable growth having been supplied by the intelligence of the owner, the inherited good qualities of the calf will get fair play. But if good qualities of breed inherited from the best of stock be balked at the beginning by unsuitable conditions for growth and thrift, all chance of after profit from milk or fattening is gone. The profits of dairymen are to be largely augmented by proper attention to the early feeding of early calves. Such stock-raising will foster the export trade of fat cattle, and enable farmers more numerously and satisfactorily to patronise either a cheese factory or creamery.

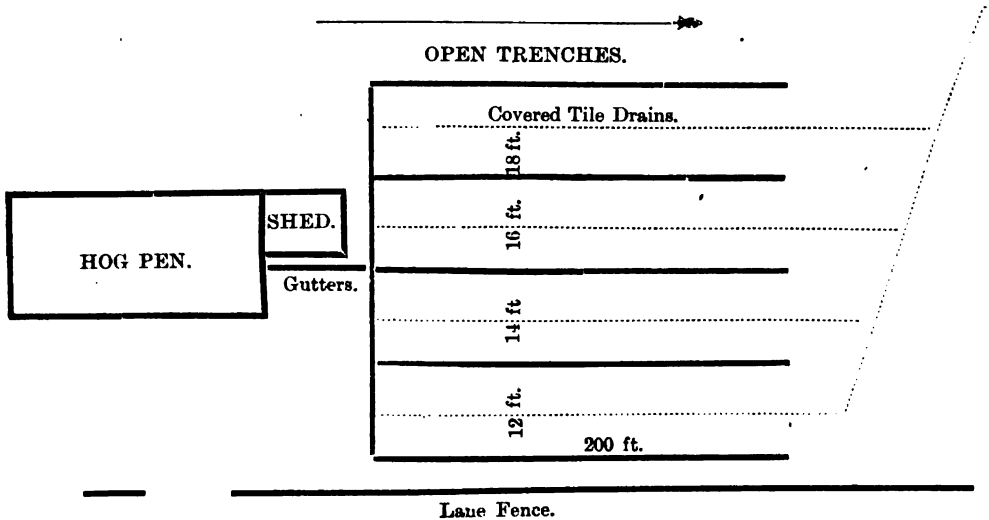
THE DISPOSAL OF BY-PRODUCTS BY HOG FEEDING.

The feeding of a large number of hogs near a cheese-factory or creamery has for some time been recognized as a nuisance to those living in the vicinity; a nuisance to the health of the population, and a source of trouble to the factory operators. All this is so because

at most places no adequate provision has been made for the disposal of the refuse from the pens. A hog-pen was constructed on the Experimental Farm in June, for the purpose of testing the adaptability of a system of draining and filtrating such refuse, rather than to gauge the gallon-value of butter milk or skim milk for pork production. The site for such a building should, if possible, be chosen near a piece of land with a gentle slope. The building was so planned and erected as (1) to most conveniently meet the needs of the hogs for fattening; (2) to prevent the escape, except by the gutters, of any liquid manure; (3) to be economical in cost.

The inclination of both floors toward the centre of the building permits of the hogs lying on dry floors all the time. This is important for thrift. The cleaning out is easy of accomplishment, and the disagreeable smells are reduced to a minimum. From the gutters the liquid refuse passed into a cross-head, open trench about one foot deep. From it were made five lateral trenches running down the slope. A 12 foot distance was placed between the first two, then 14 feet to the next one, 16 feet to the next, and 18 feet to the last. Between these lateral trenches, and running parallel with them were dug four drains 2 feet 6 inches deep. These were laid with 2½ inch tiles and filled up. The liquid refuse was diverted by turns into the trenches and, by a plan combining irrigation and downward filtration, passed off into the tile drains. The method worked well during the past summer. The soil between the trenches was cultivated and sown with rape, as the season was rather advanced before the drain-making was finished. The solid refuse was treated with dry earth in a shed at the end of the pens. Another year's experience may reveal some weakness or defect in the method described, but so far I am led to hope that it will prove effective in abating all objectionable and dangerous smells from cheese factory, creamery, or hog-pen refuse.

A sketch of positions may make the description more fully understood by all interested.



Fifty hogs were fed in the experiment.

III.—COLLEGE LECTURES.

Lectures on Dairying were delivered to the students of both years during the Spring term. Further instruction in practical butter-making was given to some eight students during parts of the Summer term.

A short course of lectures during the Winter term for the special benefit of practical cheese and butter makers would doubtless prove a popular and valuable provision for

those engaged in these increasingly important industries. The enterprising and energetic young men in both of these businesses would carry back into their own districts added knowledge and skill that would effectually tell for the profit of their patrons. A fortnight or three weeks would suffice, and I am confident such an opportunity would be appreciated and taken advantage of by many of our oldest as well as youngest dairymen. Discussions could be encouraged after each lecture, and much valuable information to be thus elicited could not so fully be made available in any other way.

IV.—OUTSIDE INSTRUCTION AND EXPERIMENT.

The suggestion and recommendation in the preceding Part will not be taken to imply an undervaluing of the superior uses of practical instruction and demonstration at the factories during their working season.

By request of the Dairymen's Association of Western Ontario, a number of cheese factories were visited during the summer. The cheese-makers from neighbouring factories were invited to meet at central ones. The best methods of handling the milk, etc., in all stages of the process of manufacture were illustrated in practice, and the scientific reasons for such treatments were explained.

A number of creameries were visited for a like purpose. Reports credit these visits with beneficial results.

There is need for organized Provincial supervision, including systematic instruction by competent men at the various factories, of the whole cheese factory and creamery systems of Ontario. One man's time is not at all equal to a task at which seven good workers could be fully occupied, with much benefit to the industry and gain to the country.

No experiments in cheese-making were practicable at the creamery. The only milk available was that from the twelve cows mentioned in Part II. To meet the need, the Dairymen's Association of Western Ontario voted a sum of \$300 to purchase milk at a cheese factory for experimental work.

Milk was obtained at the Brussels cheese factory, and a quantity of cheese was made there. Different lines of investigation were followed in connection therewith. A careful test was made to determine the comparative merits of the various brands of Canadian and English salt for cheese-making use. The results on the whole, taking into account the qualities of the cheese at five weeks and five months old, were decidedly in favour of the Canadian salt. A full statement of the experiments and conclusions will be found in the "Report of the Proceedings of the Convention of the Dairymen's Association held at Ingersoll, January, 1887." The cheese, of course, became the property of the Association.

The want of a salt for butter-making, that would meet the needs of the creamery-men all round, both as to quality and price, was recognized. The essential points of quality have already been stated. At my request a sample of salt was prepared for this Department in the following simple way. Brine—practically pure—was evaporated rapidly. The rapid evaporation induced the formation of much thinner flakes of salt-crystals than when a less intense heat was applied. The bulk of salt from these thin crystals was dried by exposure to the air, and not by roasting. It just met the case for butter-making. It was practically pure. It dissolved easily. The grains were fairly uniform in size. It had no sharp-edged, roasted crystals that might have escaped the grinder. It was velvety to the touch. Canadian salt manufacturers are losing a valuable customer while they neglect to meet the wants of the Canadian dairyman with such a salt, put up specially for butter-making.

V.—OUR CHEESE AND BUTTER AT THE COLONIAL EXHIBITION.

The holding of Industrial Exhibitions in the different parts of the world, and their development and extension have been at least contemporaneous with marked progress in the arts and industries therein represented. The stimulus given to trade, from the prospect of the unexpected competition in all branches of commerce, which a largely patronized exhibition always reveals, must have had some influence on that progress. There is the incidental inducement to the visitors to become purchasers, then or afterward, by seeing a varied and novel collection of goods. There follows the enquiry by the private citizens from their merchant suppliers as to where and how certain goods, seen at the Exhibition, can be purchased. Thousands of permanent customers are thus obtained for all classes of goods. Then from visiting such places, the shopkeepers and merchants conclude that they may, with advantage, add some new articles or features to their business in their own towns, all of which means more customers. Besides, there is the best kind of commercial education offered to all contributors by the displays of their competitors.

The aim of those who proposed and promoted this great Colonial and Indian Exhibition in London was to bring together evidences of the resources, products, and manufactures of the several colonies and dependencies for the promotion of the commerce of the Empire. There was no intention of making the Exhibition a competitive one, by giving awards of juries as to the particular merits of any class of exhibits. The only competition that existed was a friendly rivalry between the exhibitors and colonies, as to which of them could bring forward the most conclusive evidences of their national prosperity and commercial wealth and strength. In preparing for the beforementioned object, the Royal Commission, who had charge of the arrangements, secured the use of the South Kensington buildings and grounds adjoining and attached to the Albert Hall. The buildings are quite commodious and extensive, and are very well adapted for such occupation. The beautifully laid-out gardens and playing fountains were additional attractions for visitors.

The time at which the Exhibition was held was, perhaps, the most fitting that could have been chosen. The population of the whole empire, for some time before, had their attention drawn to the possibility of a closer administrative, fiscal and defensive union of its many dependencies. A full recognition by the different colonies and the mother country of each other's resources, manufactures, commerce, customs, and capabilities, would make perhaps the most substantial foundation, or basis, for any such agreement or federation. Indeed, if any such federation should ever be consummated, the credit will be largely due to the success of this Exhibition, and the facilities it afforded the people of all parts of the empire for becoming acquainted with each other in the manner just indicated. The Courts of the Exhibition may be said to have been a series of object lessons, informing the visitors what each colony could and did do, and thus making a succinct history of the agricultural, commercial, and social development of each. Those who examined them with care and thought could not but leave with a higher estimate and more just appreciation of the value to the mother country of both Canada and Australia.

It was expected that the Exhibition would continue for six months—as a matter of fact it lasted six months and ten days. The attendance during the whole of that time was surprisingly large for one of its class. The visitors numbered, in round figures, five and a-half millions, being an average of about 34,000 per day. The largest number attending upon one day was 81,000. It is reasonable to expect that many benefits will accrue to this country from having its products examined by this incessant stream of 34,000 people per day. A valuable stimulus to immigration of the right classes will doubtless result from the impressions left upon so many minds, the effects of which will probably be, with advantage, felt by Ontario for twenty-five years to come.

The Dominion Government having referred the matter of making a worthy display of Dairy Products to the Government of the Provinces, I may be allowed to rehearse the steps taken to make the Exhibition truly creditable and serviceable to all those interested in this increasingly important industry in Ontario. The Presidents of the Dairymen's Association of Eastern and Western Ontario were consulted as to the best mode of procedure.

In accordance with their recommendation, a quantity of fine fall cheese of 1885 make, were purchased and held for shipment to reach London in time for the opening in May. Through some unfortunate failure on the part of the companies employed by the Dominion Government to carry the Exhibition goods through as expeditiously as usual, these cheese did not arrive in time to be used in making an opening display. Some of them were stored in London, to be used later in the season. Further on, mention will be made of the excellent service they rendered.

During the summer of 1886, when it was possible to procure cheese of the summer make, another consultation was held with T. Ballantyne, Esq., M.P.P., representing the Dairymen's Association of Western Ontario; D. M. MacPherson, Esq., Lancaster, attending on behalf of the Dairymen's Association of Eastern Ontario; John Hannah, Esq., President of the Ontario Creamery Association, and the Professor of Dairying from the Ontario Agricultural College. To them was entrusted the task of selecting and collecting contributions from cheese factories and creameries. In the west, the local Dairy Boards of trade were invited to appoint experts to assist in the work. John Podmore, Esq., Ingersoll, and John Robertson, Esq., London, rendered excellent help. The ready response on the part of the dairymen in all the districts of the Province, enabled the committee to obtain such samples as to make the whole exhibit fairly representative of the cheese and butter made both east and west. The Provincial Government had further agreed to advance money to pay for the goods so selected. In this way the exhibit, in every sense, became Provincial, and not sectional or individual. It was recognized that all possible advantage could not be reaped from the Exhibition, unless some person should take charge of the goods upon their arrival in London, who would be competent to compare, contrast, and point out the characteristic excellencies of Ontario's cheese and butter, over those from other countries, competing with ours in the British markets. It fell to my lot to try to accomplish that. The fine goods sent forward made the duty light. On the 11th September I sailed for England. The display was well commenced by 1st October. There was decided gain in reaching the Exhibition with a new feature when the other departments were comparatively old and threshed out in the press of the Metropolis and country. The public interest and attendance continued unabated. The Courts were daily thronged by enquiring crowds of sight-seers, who evidently came to be amused, and left largely instructed. The space allotted to Canada in the buildings was scant enough, and not in itself the most desirable. But it became the most attractive by reason of its varied and interesting contents, and their admirable arrangement. Just enough room was got to indicate what Canada could do, had she a full opportunity to do justice to her desire and powers.

By the courtesy and help of Mr. C. C. Chipman, the acting Commissioner for the Canadian Court, on my arrival, space in a prominent place was secured. At the side of the Canadian Agriculture trophy were placed Ontario's pyramids of butter and cheese

The total quantity received was :—

618	Boxes	Canadian Cheddars	(white and coloured);
300	Canadian	Truckle Cheese;	
8	Monster	Canadian Cheese;	
299	Tubs	Canadian Creamery Butter;	
10	Firkins	do	do
2	Tierces	do	do
480	5 lb. Tins	do	do

With these, it will be seen, it was possible to make a display even in point of magnitude worthy of the industry. Two pyramid frames with surrounding shelves were erected. The edges of these were decorated with strips of colored paper on cloth, on which were printed instructive facts relating to the exhibition, and inviting visitors to "take home a sample" from "Ontario's display of butter and cheese," etc. Then ornamental cards of varied shapes and colours were attached. These had such information as "Ontario's cheese and butter are all from pure whole milk." "Ontario makes no oleomargarin e, no butterine, no imitations." "Ontario leads the world in cheese making." "Ontario has

752 cheese factories," "Ontario has 40 creameries." "Ask your grocer for Canadian cheese and butter," etc., etc.

It was not thought that the mere display on the shelves would serve our interests as well as might be done by the distribution of samples. Hence your representative considered that some means should be taken to put samples of the best in the mouths of the visitors while they admired the general appearance of the dairy pyramids. Facilities were soon provided at four counters in different parts of the grounds. Samples of cheese to be sold at a penny and twopence each were done up in neatly printed oil paper wrappers. The call for these was very good. In less than five weeks nearly 40,000 samples were so sold, and in many cases the cheese and wrappers were carried back to mechanics' and farmers' homes. The wrappers set forth such information as this :

ASK YOUR GROCER FOR CANADIAN CHEESE.

SAMPLE OF CANADIAN CHEESE

FROM THE

ONTARIO GOVERNMENT'S EXHIBIT

AT THE

COLONIAL AND INDIAN EXHIBITION.

—)o(—

The Province of Ontario, Canada, has now over 750 Cheese Factories in Operation.

Canadian Cheese is as fine as English Cheddar Cheese and finer than three-fourths of the English make.

Canadian Cheese sells for 4s. per cwt. above American Cheese.

The average price of farms in Ontario is \$37.00 (£7.12s.) per acre.

The average rent value of farms in the older settlements is from \$2.30 (9/5) per acre to \$3.50 (14/4) per acre per annum.

ONTARIO HAS A SPLENDID CLIMATE FOR DAIRYING.

ASK YOUR GROCER FOR CANADIAN CHEESE.

That means of advertising the lands, etc., of the country will be of service to Canadian farmers for many years to come. It was complained by some from our own Dominion, that

the retailing of samples in this way should have been thought quite beneath the dignity of the Government of the Province of Ontario. I thought then and have continued to think since, that the smallness of the common sense and commercial sense faculty of these croakers was alone responsible for such small talk. No matter how large in the aggregate may be the value of butter and cheese exported by Ontario annually, it must be ultimately distributed in small quantities and consumed by not more than mouthfuls. To give away samples to all who would have taken them, would have involved heavy additional expenditure, while the desired end could be more advantageously attained by selling at a small price than by giving away for nothing. The exhibition throngs talked more about and tasted and tested with more interest and took home with more care what cost them only a penny than what they got free.

Enquiries directed by persons—so tasting our cheese butter—to their grocers brought me from the latter many letters, asking where and how equal qualities could be regularly obtained. Instead of seeking to supply these shop-keepers from the exhibition I referred them to wholesale firms in their own districts accustomed to handling Canadian goods. I judged that such using of already established agencies of trade was preferable to arousing the jealousy, and perhaps the opposition of importing houses by selling direct to grocers. I think he best serves the interests of the industry he represents who encourages and strengthens, as far as possible the already established and legitimate agencies in commerce.

In another part of the ground a further display of butter and cheese was made. The use of a suitable building at one side of the gardens was obtained for the storing of surplus boxes and tubs. There it was convenient to show goods to persons directly interested in the trade, by whom a closer examination and comparison of the different lots was desired than was practicable at the central pyramids.

The subjecting of the different lots of butter to much boring by the "tester," lessened the immediate market value of many of the tubs, but that loss was of little consequence in view of the after advantage to the industry from the high quality of "Canadian creamery" being well known by the trade.

I did not find the re-packing of samples of butter in small tins easily practicable nor prospectively serviceable, and hence very few packages smaller than the five pound tins which had been prepared at the Ontario Agricultural College Creamery were offered on the counters.

Good service was rendered by the cheese of the make of 1885 before mentioned, and sent over in care of Messrs. Ballantyne and Macpherson. Often prominent dairy experts would say that while our Canadian cheese was very fine when comparatively new, it lacked good keeping properties. To such I would sample these cheese over one year old. Among the well known dairy experts to whom I showed these cheese were Mr. H. F. Moore, of Frome, and Prof. Fream, of Downton Agricultural College. The expressed opinion of both was that these old cheese were as fine then as any cheese in the whole exhibit, and so fine that to them the cheese awarded the first prize at Frome Dairy Show would have made but an indifferent second. At Frome is held the largest cheese show in England. Mr. Moore did us the justice and service of writing an article to the *London Times* containing the same statement.

I also sent samples of the cheese of 1885 and '86 and some tubs of butter to the dairy show held at Kilmarnock in Scotland. It is by far the largest dairy show in the United Kingdom. On this occasion there were no less than 645 entries, and in the show and fair not less than 18,000 cheese of British make. The unanimous verdict of experts who carefully examined the Canadian cheese was that there was nothing on exhibition finer than the cheese of 1885 from Ontario, then over twelve months old.

The dairy display received a good deal of attention from the press of London and England, which will not fail to effect some valuable results for dairymen. I quote parts of articles from only three of the many papers containing favourable comment.

The *Canadian Gazette* had the following and a number of other articles :—

ONTARIO DAIRY PRODUCTS IN BRITISH MARKETS.

"It has been left to the closing weeks of the exhibition to witness one of the most practical of Canadian exhibits from a directly commercial point of view. Visitors acquainted with the leading industries of the Dominion must often have been struck, when visiting the Canadian section, with the absence of any adequate representation of the cattle raising and dairying trades of Eastern Canada. This deficiency is now fully made up at least from one Province by the joint action of the Eastern Dairymen's Association of Ontario, the Western Dairymen's Association of the Province, and the Ontario Creamery Association. These three bodies have united, and together sent over 500 boxes of the finest Ontario and Stilton cheeses, contributed by some forty different factories throughout the eastern and western sections of the Province, and about 160 tubs of fancy creamery butter, to be followed by 150 further tubs this week. These goods are now being arranged on the south side of the eastern transept of the central gallery, in the form of two trophies of cheese and butter, and a side display of fancy packages of butter and small Stilton cheeses. The exhibit is in charge of Mr. James W. Robertson, of the Dairy Department of the Ontario Agricultural College, at Guelph, from whom the following information, in regard to the exhibit, was elicited in the course of a conversation with our representative :—

"'The object of our display is,' said Mr. Robertson, 'to introduce our best Canadian cheese to English consumers. Hence a good portion of the cheese will be sold in small quantities to visitors in the course of the exhibition, while the balance may be disposed of direct to retailers here, so as to allow of no mistake as to its being Canadian cheese. We feel very strongly in Ontario the imperative necessity of taking active steps to bring the good quality of our cheeses before the direct notice of the consumers here. We have not had fair play in the past. Formerly—i.e., eight or nine years ago—Canadian cheese was sold here as American, but the Centennial Exhibition so revealed the superiority of the Canadian product, and we have since so steadily kept the lead, that our best Canadian Cheddar is often now, on reaching this market, sold as English Cheddar, while inferior English qualities are often sold as Canadian. Hence a prejudice has not unnaturally arisen against our cheeses, though we hope yet to prove how unwarranted this prejudice is. Then in doing this we hope also to promote emigration. We are earnestly looking for the settlement on our fertile lands in Ontario of the English farmer, who has capital enough to enable him to buy land and have a surplus sufficient to stock it well, and at once enter upon dairying on a profitable scale. Nothing will appeal so much to this class of English agriculturists as the excellence of our product, and seeing that the best Ontario cheese is equal to the purest English Cheddar, and superior to three-fourths of English Cheddar, and is quoted at four shillings per cwt. above the finest United States cheese, we don't anticipate any great difficulty.'

"'How does the industry stand in Ontario?'

"'According to the last returns for 1885 we have in the province 752 factories in operation, with an output of nearly seventy-one and one-fourth million pounds, of the value of one and one-fifth million pounds sterling. The increase in the number of factories last year is thus only one, and in the output of four and one-fourth million pounds, though the fall in prices, which affected Ontario less than English dairymen, made the value of the 1885 output less by a quarter of a million sterling than that of 1884. Our present policy is to strengthen in every possible way by co-operation and instruction the hands of each dairyman, and past success gives reason for the expectation that we shall thus be able to keep in the front rank even in the face of keen competition. The great thing we have to fight against here is prejudice. This alone prevents Canadian cheese from selling as high as the fancy makes of English cheese. In this respect the London market seems as yet the most satisfactory, in that it regards our products with less of that unreasoning prejudice so common in many parts. English dealers need not, however, fear that we are

going to overdo the business. We are careful of that, and what development takes place will now tend in the direction of butter rather than cheese production.

“ ‘Ah, yes. Canadian butter might be improved with advantage, might it not?’

“ ‘Yes, it might, and will be, for we want to introduce it fairly into this market. It is true that our butter has a bad reputation here, and perhaps deservedly so, but the Canadian Creamery butter is now made in sufficient quantities with us to be exported. We have good samples of this creamery butter in the exhibit, so as to open up a market for it.’

“ ‘What is the distinction between dairy and creamery butter?’

“ ‘Well, dairy butter is just the butter made at a private dairy by farmers and their wives, without either of them being skilled in its manufacture. Creamery butter is the product of the butter factory, where the cream from, perhaps, one hundred dairies is collected and made into the purest butter by those skilled in every improvement. We are thus, you see, adopting with our butter the same factory system that has proved so successful with our cheese. Canadian cheese, when it used to be made at the farmhouses, was a complete failure, so far, at all events, as outside markets were concerned; but since the factory system has been introduced it has been a marked success. We have the prospect of at least twenty-five new creameries being erected in Ontario before next spring—that is, twenty-five butter-making factories. The farmers form joint-stock companies, and erect the factories in many cases for the disposal of their produce. In other cases the factories are built by private capital, and the owner of the creamery charges a commission for the manufacture. It is easy to see the great aid this system is to the best methods of manufacture, and how the market naturally discourages the home production of dairy butter and favors the product of the creameries. The difference is that, where Ontario dairy butter may be worth barely 12 cents per pound, creamery butter will be worth 20 cents per pound. The commission of the creamery owner would be, say about $4\frac{1}{2}$ cents per pound, leaving an advantage of $3\frac{1}{2}$ cents per pound to the farmer who makes use of the creamery rather than attempting home production. We have a creamery at the College at Guelph, and have sent over samples of butter made there. We have also something new here in the way of five pound tin packages for retail sale in the place of fifty pound or one hundred pound firkins. The experiment is, we think, worth a trial, a five pound package being of a convenient size for family use,’ etc., etc.

The *Morning Post* wrote as follows:—

“During the past two weeks there has been in the Exhibition at South Kensington a display made by the Canadian Government of the greatest importance to the British farmer. It is that of cheese and butter from Ontario, the whole having been collected from some fifty factories, and brought over to the Exhibition by Professor J. W. Robertson, who is the head of the dairy department at the Ontario Agricultural College. An examination of this extensive exhibit ought to be the aim of every cheesemaker in the country, for without an examination he can have no idea of the perfection to which the Canadian competition has been brought. The writer of these reports spent an afternoon in company with Professor Robertson and Captain Clarke (who is in charge of the Canadian agricultural exhibits), in an examination of these dairy products, the high quality of which would fairly astonish the cheese and butter makers of the country. That which was tried was two months old, and had been for ten days (and ten days of heat), in the exhibition. It was not at all salt, the natural texture was well preserved, it was well and solidly worked, and of fine meaty flavour. It was equal to our best butter, and this, it is said, can be placed on the English market at 1s. a pound. There was none better at the London Dairy Show. The Canadians are trying hard to meet the markets in this country, and this butter will be imported fresh in five pound tins, which can be obtained regularly by the householder. But it was in the cheese department that the greatest perfection has been obtained. Here there are in all some 400 cheeses, all made on the Cheddar system, and all of a uniform high quality. Out of the 1,000 cheeses shown at Frome last month it would have been impossible to have selected 50 cheeses of such a uniform quality as the 400 on exhibition at the Canadian Court, while the first prize

winners at that show would have been run very close indeed by most of the Canadian. The cheese shown vary in size, the "truckles" being about four pounds smaller than those usually made in the west of England, and the ordinary sizes weighing about fifty pound to seventy pound against the eighty pound to one hundred pound of the deep Cheddars of the west of England. The Canadian cheese is also earlier in maturing than our own Cheddars, the cheese in the exhibition being about six weeks old, and being then well matured. At that age our English cheese would be still soft and curdy. The Canadian cheese is mellow, silky, and meaty to the palate, solid in body, and of fine grain and texture, is rich and nutty in flavour, and is shapely in size, clean in appearance, and smooth and clear in the skin. It is a great pity that at the show at Frome a few lots of Canadian could not be sent for competition, for it would prove such an "object lesson" to the farmers of the West as they would not soon forget. This exhibition opens up a very great question for the English Cheesemonger, and that is how it happens that Canada has been able to produce so even and high a quality of cheese. It is not in the factory system that the answer is to be found, for the United States has factories, and its cheese is much inferior to Canadian. Cheddar cheese has really become the world's cheese, and is made not only in various parts of Great Britain, but on parts of the Continent, in Canada and the United States, and in the antipodes. In the latter place Victoria produces a higher quality than other place. The subject of Cheddar cheese in every part of the world requires to be investigated, and a more useful work could not be undertaken by the Department of Agriculture at Whitehall. A good investigation would give such a mass of practical details that could not fail to be useful."

The following extract is taken from the *Daily Telegraph* :—

"Two or three years ago Canadian butter was made at each farmstead, with every possible grade of care and negligence, science and ignorance, with the net result that a small portion was excellent, a certain quantity middling, and the bulk grading downwards to 'very inferior.' Two or three years ago co-operative dairying was started under the auspices of the Government and under the supervision of the Ontario Agricultural College. The idea of this system is that the farmers of a district possessing 500 to 1,000 cows among them send their milk to a creamery. There it is treated in a most scientific manner by skilled hands using the best machinery, the result being that butter is produced of a uniformly high quality, the farmer receives a better price and the public a better article. Professor Robertson, of the Ontario College, is now in London representing his Government at the Colonial Exhibition, and he has explained the principles on which the system is worked in his Province, which has led the way in the Dominion; and his exposition goes to show that the colonists have applied strictly scientific theory and art in the attainment of their object. They have recognized first of all that butter has a natural texture which is destroyed by mixing and too much handling; and second, that it is a material which undergoes a natural ripening or maturing process, and that this may be hastened or retarded to suit the requirements of commerce. Taking these points together, it may be said that the finest product is only possible where the butter is made from the best milk, by the most careful processes, untouched by hand, and when it is brought to market just at the time when its oxidation or mellowing by contact with the air brings about the mature or ripe flavour. In Brittany, England and Ireland, butter is usually made in shallow vessels, and at a rather warm temperature. The result is quick oxidation—soon ripe, soon spoil; and an excess of salt is used to prevent it from becoming rancid. The Canadians use, on the contrary, deeper cases, submerged in cold water, and their fresh butter will keep easily from three to five weeks; with a very slight covering of salt, and packed in suitable tins, it will keep good for a year. They can send perfectly fresh butter to the English market, and the probability is that in a few years this will be done to a large extent. In Canada the whole cost of collecting, churning, providing packages, salt and other necessities, is 2½d. per pound."

My own pen was not idle in the matter of commending our Dairy Products and the natural and good features of Ontario for farmers' homes. Thinking that two of these

letters may contain some information of interest to Canadian readers I take them from *The Daily News*:

BUTTER MAKING.

To the Editor of The Daily News:

"SIR,—I read with much interest your remarks on the butter trade in your Agricultural Notes the other day. It cannot be without commercial benefit to the country that your paper evidences such a lively concern in its great agricultural interests. Very timely, indeed, is any discussion that tends to enlighten on the dairy industry, which is fast coming to the front, in the northern latitudes of the Empire, as the main and most profitable branch of farming. The town and city people need information as much as the dairymaids of the country. And the instruction of the city consumers as to the "hows," "whys," and 'wherefores' of butter-making, would quickly and forcibly tell in a prosperous propulsion to the trade wherever intelligently, tidily, and scientifically carried on. Fine butter is a table luxury which will always be cheerfully paid for by the masses, at a price profitable to the makers; and while its "fineness" of quality is eminently the characteristic which gives to it, and through it to the dairyman, superior and profitable value, the same "fineness" is that which really costs nothing extra of cream or labour to produce. When British dairymen—English, Irish, Scotch and Canadian—all learn how to add or rather conserve the natural "fineness" of flavour in their really nutritious butter, the price will come up to an abundantly profitable figure. By butter-making there is hardly any appreciable exhaustion of the fertility of the soil; by it there is provided remunerative employment for many extra workers; and out of it the producer (the farmer) realises a larger percentage of its ultimate cost to the consumer than from almost any other article he sells. That all being so, why is it that the British and Canadian farmers do not supply all the butter England and Scotland want? If British farmers would but adopt the Canadian methods of manufacture, and British consumers but become acquainted with the excellencies of Canadian creamery butter, the question would not need to be asked. Herein is a subject for the investigation and consideration of agitators for Imperial federation. The vitality of any scheme of federation will be proportionate to its power for promoting the interests of all the individual citizens concerned. The increase by it of everybody's comfort and safety, and the making of life to the people richer in its opportunities and enjoyments, will alone make federation desirable, durable, or endurable, or by it strengthen the Empire. Whatever facilitates the interchange of excellent food commodities will be the harbinger of closer union. Therefore, through your columns, I seek to speak to Canada of England's unsupplied need of fine, pure butter, and to England of Canada's power and resources to supply it; and, besides, in the supplying of this food-need, to give therewith such apt and acceptable dairy information and instruction as will direct England's and Ireland's and Scotland's farmers to do better for themselves.

"In every department of agriculture, the colonies have learned and are learning much from the mother country. But the impetus given to life, in every avenue, in a new country, impels its population to the speedy development and combination of old and merely local methods into comprehensive, adaptable and applicable systems. This is true as applied to the dairying industry and other minor things, such as newspaper making, public policies, social customs, etc. The love of the new—the changed—for its own sake, is characteristic of the mental and mechanical methods of all young countries. However in the case of a colony like Canada, heathfully fed by numerous additions of immigrants from old countries, with their tersely conservative habits, the native tendency is well corrected, and safe progress only is made. But what has that to do particularly with butter-making? Well, this. Canada can and does make as fine and finer and as uniform a quality of butter as the "Brittany mixture" so highly commended by the well-known butter merchant mentioned in your article, before referred to. Moreover the uniformity of Canadian creamery butter is not due to the "grinding," "milling," or "mixing" of different samples into one homogeneous mass, whereby the natural texture and grain are all destroyed, and the butter left as greasy as goose gravy. Canadians have adopted the good and the good only of the "mixing" system. They mix the cream, not the butter,

from fifty to two hundred dairies at each creamery where finest butter—every package alike—is made by skilled butter-makers. Uniformity and fineness of flavour, body, and colour are thus obtained without the destruction of the keeping properties by the objectionable “milling” process. Canadian creamery butter has only to be well-known in the London market to divert the trade that now goes to a foreign country into the channels which are being more widely opened between England and her Colonies. Let but English butter dealers lend their aid by introducing Canadian creamery butter to their customers—(and here let me remark that Canada manufactures no oleomargarine, no butterine, no imitations)—and much of the desired end of increased, closer, and more profitable trade relations between the mother country and her enterprising children will be brought about. Then, as soon as Canadian creamery butter is well known, English and Irish farmers will begin to inquire about the “hows” of the system by which such results are obtained; and an early adoption of the creamery system into their own districts will soon be sought. Let the landlords, who are said to find many tenants unable to meet their rent obligations, take the lead in this matter, and the money which may be invested in factory buildings will yield 1,000 per cent. in the prosperity of the tenants and the consequent increased value of properties. The Government of the Province of Ontario, having in view the development of a butter trade with England, on a scale equal to the export cheese business of the province—now over \$6,000,000 annually—are about to exhibit a large quantity of butter and cheese, contributed from all parts of the province, at the Colonial and Indian Exhibition. Sample packages of both may be obtained by visitors. Inquiries as to the resources of the province and the nature of Canadian dairy systems, so far as the knowledge may further fore-mentioned objects, may be addressed to the undersigned at the Canadian Court, Colonial and Indian Exhibition.

Your obedient servant,

JAS. W. ROBERTSON,
Government Superintendent of Dairying for
the Province of Ontario, Canada.

Ontario Agricultural College, (Dairy Department),
London, England, Sept. 28th.

“CREAMERY” BUTTER.

The following statements are made in the form of a letter by Mr. J. W. Robertson, Government Superintendent of Dairying for Ontario, dated from the Canadian Court of the Colonial Exhibition:—

“For the moment the butter industry is exciting unusual attention and comment in the Press. Producers and consumers alike manifest lively concern for the improvement and extension of this most profitable branch of farming. Nor is the quickened interest confined to London and England. The news from Cork tells that Irish farmers and merchants are bestirring themselves, in the hope of recovering their once enriching trade, which lately foreigners have won from them. Nearly every article and letter on agricultural affairs makes more apparent the urgent need for some action. The Government might well implement their expressed intention “to investigate the capacity of Irish resources for development by public works on a remunerative scale,” in connection with this business, and that, too, with unique advantage to Ireland at this particular time. By a simple calculation, founded upon the data of last week’s market reports from Cork, it appears there is a difference of about £6,000 between the total value of the butter sold there during the week (about £33,300) and the sum that would have been realized (about £39,300) had it all fetched the price quoted for best quality. What a large loss every week to the producers on the butter of one market, due to the manufacture of irregular and inferior qualities. The loss indicated is not local nor peculiar to Cork, but is all too general over dairying Ireland and England, where butter is made at the farms without system. To prevent the continuance of such an enormous loss to the farmers of the country, and to protect and foster this valuable and elastic industry, surely comes within the

scope of Government duty. I am convinced that such a desirable end can be efficiently attained by the establishment of suitable creameries, after the Canadian system. By their general introduction a profitably and permanent enlargement of the trade would be immediately possible by the production within our own Empire of sufficient uniformly fine butter for our own people. Such a quality would always be in demand at remunerative rates. At the Ontario Agricultural College in Canada, the Government erected an experimental creamery some two years ago. The cream from nearly 1,000 cows is now received. The system of butter-making throughout the whole province is being rapidly changed and much increase of wealth is going into the country in consequence. The institution is educational, and free instruction in the management of creameries and the details of scientific butter-making is given to eligible young men. Why does not the Imperial Government aid English and Irish farmers in a similar way? Contrasted with the mixing, milling Brittany process, the Canadian creamery system has everything to commend it. The desirable keeping properties, which add much to the butter's worth, are by it conserved, and the natural and exquisitely delicious creamy flavour is preserved for weeks. The national importance of the subject will excuse me in encroaching further on your space to state in popular terms some interesting facts recognized by only a few experts.

1. The natural flavour of milk and its products reside mainly in their fat constituents.

2. While milk is quite new its cream or fatty portion is comparatively insipid or lacking in flavour.

3. By exposure to the action of the air (oxidation) the flavour is ripened or developed, and the colour of the cream and butter made therefrom is deepened.

4. A warm temperature facilitates and a cool temperature retards the development of flavour.

5. Thus, butter made from cream raised at the ordinary temperature of the atmosphere, in open shallow vessels (such as are commonly used in Brittany, England, and Ireland), has a much fuller and riper flavour when just made than butter manufactured from cream raised in deep cans, submerged in cold water, as by the creamery system of Canada.

6. The former butter has its best flavour within two days after it is made, while the latter, the creamery, may continue to have its best taste from three to five weeks afterwards.

7. The earlier development of flavour in that butter which is at its best just after churning proclaims it of the character defined by the fruit adage, "Quick ripe, quick rotten." For such butter, delicious while fresh, nobody claims keeping properties any more than for harvest apples the quality of keeping sound till Spring time.

8. On the other hand, the quality of creamery butter (as evidenced by the Ontario Government's display at the Colonial and Indian Exhibition free for inspection and examination by all interested) shows that it has excellent keeping properties.

9. The butter fat of milk is in the condition of minute globules. These are collected into mass by the impaction of churning.

10. Any after-working, "mixing," or milling, that destroys the natural grain or texture of butter, thereby destroys its keeping properties, just as the bruising of fruit or the breaking of egg shells renders both of these commodities subject to speedy decay.

11. As an article of diet, delicious butter is very different in its gastronomic effect from oleomargarine or any imitation compounds.

12. Fine butter—its peculiarity—aids weak digestion by instilling its own atoms between the atoms of more solid foods, thus assisting in their disintegration for assimilation.

It will be to my satisfaction, as an humble servant of my own Province and of the Greater Britain, to give any further information I can that will be helpful in promoting the prosperity of the farmers of the empire along the lines indicated."

These have since been copied into the leading British papers and journals devoted to the provision trade. Many inquiries came in consequence and the information thus given about Ontario, and Ontario's butter and cheese, may be of some help in the further development of her natural resources. Numerous letters came from English, Scotch and Irish dairymen, seeking information about how to improve the quality of their goods. Any help in that direction that can be given would leave a larger and more profitable market for Canadian products. Though this is perhaps not the place to fully discuss that proposition, it may not be amiss to point out that during the months of November and December, the consumption of some of the inferior and cheaper qualities of late-made English cheese very much weakened the demand for higher priced Canadian. The consumer is a very much longer time about consuming two pounds of inferior cheese than in disposing with satisfaction of four pounds of excellent quality. Every pound of inferior butter or cheese made anywhere shuts off the demand—by lessening the consumption—for at least twice its quantity of fine quality. The conclusion that the higher is the standard of quality of dairy products of our own and all other countries that compete with us, the more profitable will be the business for all producers, is indisputably correct. The exhibition is to be credited with doing something in that direction.

The criticism of some of the best buyers drew my attention to some of the defects that lessen the value of our average shipments of both cheese and butter. At the three dairy conventions I have pointed out these and detailed the slight changes in the process of manufacture that are needed to remedy or avoid them. I may condense the important points as lessons for cheese and butter makers.

LESSONS FOR CHEESE-MAKERS.

- I. Uniform fineness of quality is required in *every* cheese of *every* lot.
- II. A cheese with fine flavour and solid and buttery body, which will retain its richness after exposure by cutting, is wanted.
- III. A smooth, bright rind, without cracks, gives additional value; also a neat finish as to shape and general appearance.
- IV. Scaleboards should be put on just before boxing, and so as to stick closely to the surface of every cheese.
- V. Cheese boxes should be made with stronger covers to safely stand the rough handling of transshipment. The cover bands should be $\frac{5}{8}$ of an inch thick.

LESSONS FOR CREAMERY BUTTER-MAKERS.

- I. An attractive, neat and clean butter package, that will be decently ornamental to a provision shop will increase the value of the butter. Besides the packages already in use, a Canadian cask with wooden hoops and holding 112 pounds would meet with favour.
- II. The use of impure butter cloth leaves an objectionable taste on the top of the butter, very seriously lessening its value.
- III. Such salt should be used as may be tasted but not felt by the touch of tongue or finger in the butter.
- IV. Pure brine should be frequently poured on the butter while in store. A tallowy taste for an inch on the top is induced by neglect of that.
- V. All butter for export shipment should be stored in suitably cold store-rooms from the time of making.

The need for attention to the last mentioned matter is so urgent that I take the liberty of stating the case at some length. In our competition with butter from Ireland, Denmark, France, Sweden, Holland, etc., we labour under difficulty in trying to put Canadian butter on the consumer's plate in the best condition to please the palate and nourish the body. In the matter of freight charges we are comparatively well off, but the circumstances presently existing of our largest production being at a time when safe

transportation is most difficult, and when the price in all consuming centres is lowest, is against us. The adoption, in a measure, of winter dairying might be recommended as a partial relief and remedy. Still this state of things exists, in that most of the June and July creamery butter is stored somewhere, either on this side the ocean or the other. Hence the providing of suitable storage that will prevent deterioration in quality, and consequent depreciation in price, is a manifest need of the business. In visiting creameries during the past summer, I generally found the storage accommodation quite inadequate and unsuitable. Large refrigerators at convenient centres would be more economical for use than the erection of small ones at every creamery. Then there would be less risk of butter "going off in flavour" when kept in buildings exclusively used for that purpose, and looked after by men engaged for the definite work of regulating its temperature and preserving its contents. Such buildings would be of Provincial and national service and benefit. Watchful attention to a continuance of suitable conditions for preserving quality, with proper selection and classification, would gain us a higher reputation and price. Any quality under fresh-flavoured, sweet, delicious-tasting butter, will be pushed out of the market by the finest brands of butterine. I am satisfied that by treatment as advised, June butter, in nine cases out of ten, would reach the consumer in better condition in November and December, or later, than by immediate and direct shipment in midsummer, followed by exposure to the humid air of English warehouses and shops. Probably the farmers would not receive their full share of the increased prices for a time, but additional wealth would be brought into the country, and the competition of commerce would soon equalize the distribution of profits. A rate of 5 cents per tub per month would amply cover all expense and allow a fair dividend on the cost of buildings. It would thus be possible to preserve the creamery butter, and put it before the consumer in England, or elsewhere, in its best state, and at the season of the year when the highest price may reasonably be expected.

The interests of the carrying companies are closely identified with those of dairymen. When the latter use only reasonably strong boxes and packages, the former should look after their safe carriage. The heated and damaged condition in which I observed some cheese to be discharged from the ships' holds, if continued, will speedily and justly lead to the withdrawal of Canadian dairy patronage from such vessels.

With the consumers, the shop-keepers, the wholesale dealers, and the importing firms, the butter and cheese from Ontario now stand in higher repute than ever.

Of the general influence of the dairy display from an immigration-fostering standpoint, I am not prepared to report. But this I can confidently write, that the Apple, the Honey, and the Cheese and Butter exhibits, all mainly under the care of Ontario men, did more to bring a true knowledge of the resources and climate of the Dominion of Canada before the public in an acceptable way than all the other departments of the Colonial and Indian Exhibition put together.

Commemorative medals and diplomas will be issued to all who contributed cheese and butter to the exhibition.

My thanks are due and are hereby tendered to all who aided me in the endeavour to make the display of cheese and butter from Ontario a success.

VI.—THE FARMING AND DAIRY SYSTEM OF DENMARK.

A few lines may be devoted to the mentioning of some things observed while on the journey from England to Denmark, that may have educational value for farmers in Ontario.

The route taken was by way of Queensboro'; thence by boat to Flushing in Holland; thence by rail *via* Bréda, Boxel, Goch, Wesel and Hamburg to Kiel; thence by steamer to Korsør in Denmark and on to Copenhagen by rail. London was left on the 3rd December.

The continental railroads travelled over were well equipped. The roadbeds, in respect of their construction, were between the English and Canadian styles in point of solidity

and durability. The engines seen were mostly of English make. The passenger coaches, which were comfortably upholstered and heated by steam, were built after the English pattern, with compartments across the cars, having entrances from both sides. The freight box-cars and trucks were much smaller and lighter than those in use on the Grand Trunk and Canadian Pacific Railways. The average rate of passengers' fare is lower than in Canada. On the German State Railways there are no less than four classes of carriages. The fourth-class have no seats and are largely used by labourers travelling short distances to their work at very low rates.

A thin sprinkling of snow lay on the ground. The country of the Dutch surprises one by its generally flat aspect. The monotony of a prairie scene is absent, as canals and ditches scarify its whole surface. The fields have a rich alluvial soil of dark colour. Trees, visible from the car windows, were all of light timber and mostly scrubby-looking. After Tilburg was passed, the soil has lighter colour; and stunted shrub beech is plentiful. What seemed to be thriftless thorn and beech hedges disfigured the landscape.

The fields were mostly ridged up with deep furrows between the lands. Large fields of turnips looked very well. The kinds were mostly yellow and soft purple tops. On meadow lands the pasture was still fresh looking, with a good roughness of top for feeding or winter protection.

Great Don Quixote wind-mills, for grinding, were here and there lazily rolling round. The farm-houses were generally built of brick of smaller size than ours, and roofed with red or dark coloured tiles. Occasional groups of three or four houses close together, with moss-covered thatch roofs, seemed to have grown out of the ground on which they stood. After crossing the German frontier, the country had very similar appearance to the undulating and fertile districts of Ontario. The woods were large in area and their trees looked as large as those in Canadian forests.

The farms appeared to be smaller and the barns were quite dwarf-like in comparison with bank barns on 100-acre farms in Canada. The peasants are rather slow-moving and sedate-looking people. The farm labourers still wear wooden clogs, kept on by the movement of the toes. Their stockings are without soles and are kept in place by a leather strap around the instep and toe. For fuel, wood, peat or turf, and coal are used.

From Hamburg to Kiel through Holstein, the country is generally flat, with blotches of turf, whence the peat is obtained for burning. The soil is very much assorted, many different colours being seen in single fields. The hedges of hazel, thorn and beech are neglected looking. The woods are about as heavy as in Ontario and mainly of elm and beech, with some light birch. At Kiel I inspected a creamery, but instead of detailing what was seen at each creamery or dairy visited, I will gather into one place a description of the best points in butter making seen at the different places.

On reaching Denmark, one is struck by the clean and well cultivated appearance of the farms. The soil is of boulder clay or boulder sand. Geological researches have revealed the history of its timber clothing at different periods. There was first poplar, then elm, followed in turn by pine, oak, hazel and beech. The present is still the beech period there.

The average annual rainfall is from 23 to 24 inches. The mean yearly temperature is 45°.

For a small country, Denmark deserves much praise for the long and thorough attention given to agricultural investigation and education. Outside the kingdom, the impression prevails that the Government of the country has financially and otherwise borne most of the burdens inseparable from the establishment and maintenance of educational means and facilities, which have been of much national benefit and have enabled the Danes, particularly in the making and exporting of butter, to gain the foremost place in the world for quantity and quality exported per acre of kingdom area.

The Government has all along maintained a friendly and fostering attitude towards the improvement of agricultural methods and implements, and has given liberal grants towards furthering scientific investigation and the dissemination of sound knowledge relating to land and its cultivation, as well as to stock and the manufacture of their products. But the agricultural and dairy instructors of the country have not been very

liberally fed at the public crib. Their success and the really telling education which the young men and women have received, I judge [to be due to the necessity laid upon all of them, of largely helping themselves before they received Government assistance. That the Government should support agricultural and educational concerns merely for the sake of appearances does not seem to have come within the range of Danish administration.

As long ago as 1769 the Royal Agricultural Society of Denmark was established. It was originally founded for the purpose of promoting interest in and spreading useful information in relation to all rural industries. The main objects sought to be attained through its organization might be summed up as :

1. Holding of meetings for the discussion of matters having scientific and practical bearing on agricultural interests as well as the publication and distribution of books and pamphlets thereon.
2. The employment of persons competent to advise farmers on dairying, on the care of stock and on the treatment of diseases of farm animals.
3. The institution and supervision of experiments, embracing chemical analyses, etc.
4. Arranging for and superintending the placing of apprentices on farms and in dairies, and granting certificates to such as comply with the conditions of service and prove deserving.
5. Acting as a central organization for the numerous local agricultural societies in the kingdom, and joining with them for the purpose of holding one comprehensive exhibition every five years at different centres.
6. Assisting in fostering the export trade of farm produce, and submitting to the Government reports on agricultural subjects.

In 1853 its membership was only about seventy, while now it has on its roll nearly one thousand members paying an annual subscription of a little over \$5 each. Up to last year it received an annual grant from the Government of rather more than \$800. That is now somewhat increased. It has a funded capital of about \$90,000, part of the revenue from which is devoted to the maintenance of a few deserving pupils at the Royal Agricultural College at Copenhagen.

The local agricultural societies are very numerous and keep alive an active interest in the progress of farming knowledge and methods in the remoter districts. From these clubs, delegates are sent yearly to form one agricultural society for each of the four provincial districts, into which the country is divided for that purpose.

Both these and the local societies hold exhibitions every year, and the Government contributes to the premium fund dollar for dollar provided by the societies themselves.

Before proceeding to briefly trace the part taken by the Royal Agricultural Society in the development of agricultural education, mention should be made of the Polytechnic School, established in Copenhagen in 1829, and also the Royal Agricultural College of Denmark. This first institution, which seems to cover the same and more ground, educationally, than the School of Practical Science in Toronto, is very highly esteemed for its work in preparing thoroughly competent teachers for the Royal Veterinary and Agricultural College. At this school, in 1849, Prof. Jorgensen first commenced to lecture on rural economy.

A veterinary school had been in existence at Copenhagen from 1773. In 1856 it was decided to add to it a full course of instruction in all branches of agriculture. Then it became the Royal Agricultural and Veterinary College of Denmark. It is now entirely a Government institution, the expenses being met by an annual grant from the public treasury, which, however, is supplemented to a considerable extent by revenue from legacies and gifts invested for its benefit. There are twenty-two professors and thirteen assistants, besides the inspector and other officials upon its staff. The total annual expense is about \$33,000, of which the Government pays about \$28,000.

Its curriculum embraces five divisions, Veterinary Science, Agriculture, Surveying, Forestry and Horticulture. Then there is a ten months' preparatory course for those

needing further elementary instruction before taking up any special subjects. Two years' study are required to pass in either of the five divisions. A few students stay for four years and thus graduate in two departments. The fees are about \$15 per annum for all lectures and the use of the laboratories and chemicals; books are extra.

The students find for themselves boarding places in the city. The cost, of course, varies with the accommodation required. The average expense for the year for fees, boarding, books, clothing, etc., was put by one of the professors at \$250 per student. The plan of College boarding for the students was considered by the authorities as very undesirable and unsatisfactory.

The College buildings seem spacious for the number of students, yet an early enlargement is looked for and promised. The class-rooms are fitted up in admirable arrangement. The museums are replete with specimens of every creature and skeleton that might be found on a farm. The skeletons of cattle, horses and sheep, which, while naturally clothed with flesh and skin had once won prizes at leading shows, now serve as models from which to lecture, demonstrating the desirable points of frame and build. Samples of all kinds of seeds and farm plants are daily handled in the class-rooms; working models of implements and machinery (ancient and modern) are taken apart in the class-rooms as far as practicable, and the names, uses and manner of construction of each piece explained. So, also, with the various fertilizers of commerce.

The chemical laboratories are fitted up most completely and ample opportunity is afforded all students for practical work in analyses. The O. A. C. laboratory at Guelph is like a blacksmith shop beside a well equipped engine works when compared with that at Copenhagen.

There is also a large botanical garden adjoining the college. One feature that delighted me was the full and clear labels attached to every shrub and bush. Some twenty acres are used to illustrate agricultural operations. The students visit the plots in company with the professors to watch and note the progress, differences and likenesses between plants and grasses at their various stages of growth.

For the use of veterinary students there is a suitable dissecting room, with excellent appointments. Under the charge of the same department there is a commodious horse hospital, where the disabled and sick equines of the city are stabled and doctored. The students accompany one of the professors of veterinary science on his morning rounds and receive clinical instruction.

A branch hospital is a retreat for the sick dog-and-cat pets of the capital. At this place we received a very noisy welcome. Horse-shoeing is taught in an adjoining building. A small dispensing laboratory is attached, where students learn how to prepare and compound medicines.

For use in his lectures on Dairying, Prof. Segelcké has models of all kinds of apparatus, used in nearly every country where cows are milked and butter and cheese are made. Especial attention is given to instruction in the use of and parts of the centrifugal cream separators.

Apart from the College stands the special dairy laboratory, under the charge of Prof. Fjord, who is assisted by three chemists and a number of other helpers. A Government grant is also made for its support (about \$5,000 annually), and the whole time of these enthusiastic experts is given to investigation and experiment with milk, butter and cheese, and the utensils used in their manufacture. The chief chemist, M. Storch, whose name, together with Prof. Fjord's, will be permanently engraved in the dairy literature of the century, kindly showed me over the place. The necessary limits of this report, and my unavoidably hurried visit, forbid an attempt at fully detailed description. Everything useful, seen or learned, will be communicated to the professor of chemistry at Ontario Agricultural College, who is with commendable vigour devoting much time to scientific dairy investigation. Besides the work carried on at this laboratory, many of the leading dairies of the country have appliances and conveniences for Prof. Fjord's use when he wishes to work at their places. Whatever improvement in dairy machinery is effected is made known freely to the public, and all useful discoveries are regularly published for the benefit of dairymen. Such elaborate care is exercised in all the work that the confidence reposed by the public in Prof. Fjord's conclusions is fully warranted and justified.

There have passed through the college course at the Royal Agricultural College—

455 in Veterinary Science during the last 25 years.				
258 in Agriculture	"	"	"	25 "
71 in Surveying	"	"	"	25 "
55 in Horticulture	"	"	"	18 "
82 in Forestry	"	"	"	18 "

These graduates become teachers in the lower agricultural schools, managers of estates, or follow the special vocation for which they have been educated, on their own account. By way of incitement to diligence, the Royal Agricultural Society—formerly mentioned—awards to successful students premiums of sums of money, sufficient to enable them to visit different parts of their own or some foreign country, for further culture and acquisition of knowledge relating to their intended calling. Many instances are on record where diligent and persevering youths have risen from poverty and obscurity, to occupy foremost places of usefulness and influence.

I return to the part taken by the Royal Agricultural Society, outside of the College, for the improvement of agricultural operations. From the beginning of the present century, it has been a very important factor in developing the country's resources. It first undertook the task of apprenticing young men to the best farmers all over the Kingdom for training and instruction. The conditions upon which youths were received were briefly: they must be native Danes, of good health and irreproachable moral character; they must have a recommendation from a magistrate and clergyman, and express an intention to follow farming. When everything of that sort was satisfactory, the applicants were accepted for two or three years. Good farmers of approved standing were glad to take these youths as learners, paying them a small sum yearly, besides giving them board and lodging. Each apprentice was left for one year only on one farm, when he was removed to a farm in another part of the Kingdom. His third year was spent on still a different farm in one of the other districts. At the outset each apprentice received from the Society a number of books bearing on agriculture, which became his own property upon the completion of the three years. Reports were made to the Society at stated intervals by each apprentice. Then from these, and the youths' records at the places where they had spent three years, the Society judged of their progress and merits, and granted diplomas accordingly.

Such varied training gave the apprentices a wider knowledge, and more skill in regard to all farm work, than if they spent the whole period on one farm under one manager. After the Society had laid the foundations for the success of the system, the demand for apprentices, and the desire to be apprenticed, quite out-grew its capacity for oversight and management. Then the terms of the Society were accepted as the basis of engagement between youths and farmers direct. Thus the leading farms of the Kingdom have each become a centre for agricultural education. The plan whereby the young men learn the systems of farming, in all the districts of their country might be transplanted with much advantage, to the farming community of Ontario. The student apprentice's life was not by any means half work and half play. They were at work by four o'clock in the morning, and, except for meals, did not knock off till seven in the evening.

By 1873 this same Society began to recognise the value of the dairy industry and the importance of and need for instruction. It took steps to learn of the best methods in dairy husbandry, followed in their own and other countries and by means of pamphlets and lectures set out to improve the manufacture of butter. In 1860, Prof. Segelocké was engaged as dairy chemist. Then his whole time was occupied in the work of apprenticing young women to the best dairies in the country. Considerable difficulty was at first experienced by reason of the opposition of the chief dairymaids, who were secretive. This was finally overcome, and a small fee in every case, for a two or three months' course, allayed their jealousy and directed their tongues to teaching. From 1864, young men were apprenticed in the same way. They were accepted by the Society upon conditions similar to those affecting candidates for apprenticeship for general farming. The term of service, however, was usually three months, instead of three years. Each apprentice was

furnished with blank report forms, on which he was required to report to Prof. Segelcké, once a week, a record of the operations of the dairy in detail. The supervision and necessity for recording details of everything done, were very helpful in furthering the young men's education and progress.

By 1885, no less than 945 youths had passed through the course of training and received the Society's diplomas. They were required to pay their own way, but no fees were charged for the Society's help. As in the apprenticing of youths to general farming, this, also, soon outgrew the need of the Society's control. Now nearly every dairy of note has many learners, accepted and trained by private agreement and arrangement. All this has told with marked effect on the general progress and appearance of the country. No antagonism is apparent between dairymen and other branches of farming. But as more attention has been paid to this specialty, so more progress and prosperity have attended the other departments of farm labour. While the Danes have been appropriately called a "Nation of Dairy Farmers" they have not neglected the thorough cultivation of their farms for grain and root growing, nor ignored the profits to be made from stock raising and fattening cattle. From the export statistics it is learned that during the four years from 1869 to 1872, Denmark exported 69,838,730 lbs. of butter and 207,513 head of cattle; from 1870 to 1873, inclusive, Canada exported 61,976,234 lbs. of butter, and 233,402 head of cattle; from 1881 to 1884, Denmark exported 133,061,193 lbs. of butter and 445,498 head of cattle; from 1882 to 1885, Canada exported 38,674,611 lbs. of butter and 360,771 head of cattle. These figures show that the development of the dairy industry is not at all incompatible with, but rather helpful to, the profitable extension of the export cattle trade.

For sixteen years, each, the export figures are :

	Lbs. Butter.	No. of Cattle.
Denmark, 1869-1884.....	433,492,488	1,401,918
Canada, 1870-1885.....	212,593,246	914,462

Enthusiastic engagement in the dairy business has led the farmers to keep more stock, and the keeping of additional stock has made the raising of larger crops of feed a necessity. It has also made the latter an easy possibility by the consequent increased fertility of the lands.

I had the honour and pleasure of visiting the estate of Baron Tesdorpf, who wears the proud honour of being acknowledged as perhaps the leading farmer in the Kingdom. He has under his direction no less than seventy student apprentices, besides his small army of labourers. I quote two of his courses of rotation of crops, which will give a general idea of the system of farming followed ;

Eight-course rotation.	Four-course rotation.
Clean fallow.	Wheat.
Wheat.	Roots.
Sugar Beets.	Barley.
Barley.	$\frac{1}{2}$ Clover, $\frac{1}{2}$ Beans.
Peas, Beans, Turnips.	
Oats.	
Clover to cut.	
Pasture.	

The same gentleman uses a phosphate fertilizer in the shape of ground bones very liberally. He applies from 600 to 700 lbs. per acre about every fourth or fifth year. His large herd, at the home farm, of some 250 milking cows, were a lot of very fine milkers. The daily ration for stable feeding while in milk for a 1,000 lb. cow was :

3 lbs. Bran.	7 lbs. Clover Hay.
2 lbs. Cake (Oil or Cotton Seed).	30 lbs. Mangels.
5 lbs. Mixed Barley and Oats.	Straw without stint.

The mixture of chopped barley and oats for milking cows was very highly commended. For Canadian dairymen, I should recommend a mixture of barley, oats and

peas. General feeding practices that had been successful in different parts of the Kingdom I found to be very much as followed by our best feeders. A word or two of comment here will not come amiss. Bran was found to be more economical for milk production, together with grain, than the feeding of grain alone. All the richer feeds are fed with the coarse feed, both to encourage a large consumption of coarse feed and to promote the best results from digestion. The feeding of clover hay gives better results in milk than the feeding of timothy hay. A mixture of grasses will be found best in Ontario. These should be cut rather on the green side and well saved and kept. An excessive feeding of roots, even to the extent of one bushel a day, is judged to be wasteful and injurious. Straw from a grain crop cut on the green side is held to make excellent fodder. Ontario farmers may note that the practice of cutting crops rather on the green side would avoid loss of grain, leave it of brighter colour and better weight, and make the straw much more valuable for milk production.

The breed of cows now finding most favour are the Angels (*g* is pronounced hard). In appearance they resemble a cross between the Ayshires and Jerseys. It is not believed that they are descended from either of these breeds; but possessing similar powers for milk production, they reflect these in forms somewhat alike. They are of a dun-red colour, shading into black on the neck and head.

The price in Denmark of a first-rate Angel Bull, with good pedigree, would be about \$165, and that of a choice picked cow about \$75. I do not recommend their importation. The average annual milk yield will be about 6,700 lbs. per cow, with an average weight of under 1,000 lbs.

The stables are constructed to provide for thorough ventilation, as the cows are often stabled for eleven months continuously. Every care is taken to preserve the manure for use on the fields. Both liquids and solids are guarded from losing their fertilizing value. In some stables the manure is pitched under the cows feet, then covered with straw, and so allowed to accumulate for three months. No bad odour was detected as arising from that practice. At other farms, covered manure yards protect their contents against the washing of rains and the bleaching of the sun. At such places the liquids are conveyed to a central tank, and frequently pumped over the compost heaps.

The stable feeding has already been described. The ration mentioned is the usual one, and is divided into three feeds per day.

Water is given in the stables. Attention is paid to its purity, and it is offered freely. Cows have access to salt at all times.

On large farms, the soiling system prevails; and cows are allowed out only one month in the year. That is either June or August. Where allowed to pasture during the summer, the cows are usually tethered. Water is supplied by a watering cart driven along between the rows, and with convenience for each cow to drink.

The milking is mostly performed by women, who, generally in large dairies, milk twenty cows each, morning and evening. Attention is paid to the equal division of time between the milkings. From four to six o'clock in the morning, and from four to six o'clock in the evening, are the times taken. A superintendent sees to it that each milker washes her hands after milking every two cows. The utmost cleanliness is observed in all the handling of milk and its products.

A record is kept of the milk yield of each cow by weight once a week, and occasional tests are made of its quality. The average quantity of milk required to yield one pound of butter is about 25 lbs., by the centrifugal separator. At some creameries where deep setting was followed, the average was 31 lbs.

The heifers drop their first calves when from twenty-two to thirty months old. The season of the year when most cows calve is from early December to late January.

Cheese-making is followed, to only a very limited extent. Skim milk mostly is used in its manufacture. The product is not very palatable, though it is rather more so than the soft varieties to be found in North Germany. The taste in North Europe seems to be for a soft, a very soft cheese, when made from whole milk: and if the odour is of an indescribably vile description, no objection is taken. The sense of smell seems to be dulled into enduring, or cultivated into relishing every kind of assault.

Butter-making is followed both on the home-dairy and creamery plans. The smaller dairies frequently unite to support a creamery, while the larger dairies of from 100 cows and upwards, can afford to manufacture their own butter economically. The shallow pan, deep-setting and centrifugal systems of cream separation, have all been tried, and in different places, are all still in practice. Progressive dairymen have abandoned the shallow-pan method for the deep-setting, during most of the season; and are now adopting the centrifugal, as an advance and improvement on the latter. It is allowed that a fuller separation of cream is effected by the mechanical than by the natural plan—that the skim milk is left in better condition for calf-feeding—and that the butter has better keeping properties. The cream is better under the control of the butter-maker for ripening, and its butter has a higher melting temperature than when milk is set in the ordinary way for cream to rise.

Care is taken to have the centrifugal machines run at a regular rate of speed. The inflow is regulated to a nicety. Then the separation can be adjusted to any per cent. desired. The usual temperature of the milk is 86° Fahr. for mechanical separation. Where deep setting is practised the milk is heated to 100° Fahr. and immediately placed in ice-water tanks, and so allowed to stand till cream separates. For the best results from shallow pans the milk is poured into them while warm, and then left in a cool room. In both of the latter cases, the skimming is performed in the well-known manner, and always while the milk is sweet. Thus the cream obtained in bulk is always sweet.

To properly ripen the cream for churning a “fermentation starter” is prepared daily in the following way: As much milk as will yield cream, equal to two per cent. by bulk of the whole cream to be churned each day is taken from the evening’s milk and set in deep-setting cans in ice-water. Sometimes it is set in shallow pans. The surface in both cases is left exposed to the air. In the morning this is skimmed. About 11 o’clock in the forenoon it is warmed to 72° Fahr., and placed under cover so as to retain its heat. By the following morning it will have become sour. The sourness is merely a result of the fermentation induced by the exposure to the air and after maintenance of warmth. This is now what is called the “fermentation starter.” After the bulk of the cream is separated, if by the centrifugal machine, it is heated to 72° Fahr. and then put in tin-lined cream tubs. To it is added “fermentation starter” equal to two per cent. of its bulk about 11 a.m. The whole mass is allowed to gradually cool to 58° Fahr., and by the following morning, or after the lapse of about 18 hours, is in the right condition for churning.

When the separation of cream has been effected by the natural method of setting, the bulk of the cream is heated to 59° Fahr., and then the “fermentation starter” is added, and the treatment is as above. These temperatures vary slightly with the season of the year and the length of time the most of the cows have been milking. So, also, the temperatures at which the churning is performed, the range being from 57° to 64° Fahr.

The churns in common use are the Holstein churns. The churn body is cylindrical and stands perpendicular, the bottom being wider than the top. On the inside and standing perpendicularly, are three or four blades of wood, fastened at equal distances around the inside. These stand out in width from three to four inches, and are about one inch thick. The churning is performed by means of a revolving dash whose axle stands perpendicularly. The churns vary in size, holding from 150 pounds to 300 pounds of cream.

The speed of revolution varies with the diameter of the churn. The smaller in diameter the greater number of revolutions per minute. By a simple calculation, I arrived at the ratio of speed to diameter. The outside of the blades on the dash are made to travel about 700 feet per minute. Churning is completed in from 30 to 40 minutes. In the cover of the churn, provision is made for the insertion of a small stick or tube, while the churn is in motion, on which to withdraw a sample and learn the condition of the cream. As soon as the cream is churned into butter-particles about the size of clover seed, the churning is instantly stopped. This stage is watched very closely, as churning too long or stopping too soon are regarded as injurious.

The butter in the granular state is then dipped out by a hair sieve. As much as possible of the buttermilk is shaken off. The remaining buttermilk is worked out by hand

in hollow troughs. No water is used to wash the butter; the hand-pressing only is applied. The working is performed on small quantities of less than half a pound each, and each piece is folded and pressed some eight or nine times. They are then placed on an ice-box to cool for an hour.

Salt is then added. From three to four per cent. by weight is the usual quantity, though the salt is generally measured and not weighed. By measuring, instead of weighing, the moist or dry condition of the salt does not affect the salting power of the quantity added. In from one hour to three hours the salt will have fully dissolved and the second working is proceeded with. The highest temperature at which butter is worked is 60° Fahr. The firkin to be filled will have been previously prepared by soaking with cold water and then washing with hot water and rubbing with salt inside. The butter is immediately and finally packed away. Usually within four hours or less from the time when it leaves the churn, the butter is packed. In that way all disturbance of the grain of the butter by re-working after it has commenced to set is avoided. The butter has better keeping properties in consequence.

The package mostly used is the Danish cask, which is barrel-shaped, and headed in at both ends. It holds 112 pounds of butter, and is finished with wooden hoops. The butter is packed in very firm and close, and covered with a clean cloth, free from all impurity that would impart offensive flavour to its surface. A slight sprinkling of coarse salt is put both under and over the cloth.

Examination has been made by trial of the effect of cold storage on the after-keeping qualities of butter when exposed to the warm summer weather of England. It was found that the cold-stored and cold-carried butter was in every way better than butter from the same churnings that had not been so treated.

A considerable quantity of the Danish butter is packed in hermetically sealed tins in Copenhagen and shipped at very remunerative prices to markets in the East and West Indies, China, Brazil, etc.

A measure has been framed, and by this time I believe it has become law, making it a penal offence to manufacture any compound in imitation of and of the colour of butter in the Kingdom of Denmark. Having won for themselves an excellent and valuable reputation, the Danes are setting their faces against the making of all counterfeit vilenesses.

For assistance rendered to me in the making of enquiries and gleanings the foregoing information, which I trust will be useful to the Dairymen of Ontario, my hearty thanks are due to Baron Tesdorpf, Rev. M. Weber, Prof. Segelcké, and Drs. Faber, of London and Copenhagen.

VII.—GENERAL REMARKS AND CONCLUSIONS.

Looked at in its relation to other branches of farming in Ontario, dairying needs and deserves more attention from farmers and educators than it has received in the past. Everybody acknowledges that the most economical way in which to increase and maintain the fertility of farms is by thorough cultivation and the keeping of large numbers of some kind of stock to consume the coarser grains and fodders. To those who prefer horses and sheep I have no advice to offer. But to those who go in for cattle I would say that dairying offers the best profits. Good milking cows leave margins above the cost of their keep; and as good and generally better stock for economical and profitable fattening may be got from such cows, and reared in conjunction with dairying than in any other way. There is an endless chain of annually increasing profit from the keeping of good cows on any farm. The more the cows kept, the more the stock reared and fed; the more the stock, the more the barn-yard manure; the more the manure, the richer the fields; the richer the fields, the better the crops; the better the crops, the more the stock that can be fed; the more the stock, etc., etc.

In those districts where milking cows are already numerous, but where no cheese factories or creameries are in operation, the farmers cannot too soon set about establishing the one or the other. The profits to the farmers from both are, on the average of years, about equal, when counting in the value of the skim-milk for calf feeding. The loss from dairy butter-making, where a market for immediate consumption cannot be reached, is very great, as has been already pointed out.

Then the dairy industry, even where well established, needs to be conducted on more progressive and profitable lines. The average yield per cow in Ontario is still deplorably small. Too much time has been spent in trying by manipulation to get the selling prices up, to the neglect of trying the more easily accomplished task of putting the producing prices down. That can speedily be effected by suitable and economical feeding and proper stabling, watering, salting and handling, as recommended. The line of possible profit is between the two prices mentioned, and nearly every farmer can make the line for himself a good deal longer than it has been, in the way just suggested.

At the factories and creameries the men whose special work it is to handle milk and manufacture cheese and butter need to keep on improving the quality of the goods turned out. As compared with the same industry in other and competing countries, our cheese-makers cannot afford to weaken effort at further improvement by too much confidence and boasting. The need now is to have *all the cheese from the Province as fine as the "make" of the best factories*. Systematic supervision and instruction would much facilitate that work.

In butter-making our creamery men have made some advances during the past few years. It is needed that the quality of the butter from the best creameries be better in 1887 than during 1886, and that the "make" from the creameries of the whole Province be as nearly uniform as possible. Judicious superintendence and practical instruction at the creameries during their working season would further that end. All of which is respectfully submitted by

Your obedient servant,

JAS. W. ROBERTSON.

REPORT

OF THE

ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION,

FOR THE YEAR 1886.

INTRODUCTORY.

The proceedings of the Union are so fully presented by the reporter as to leave the editor but little to say. It might be mentioned, however, that great interest was taken in the discussions by those present, and several suggestions which were made, have since been put into operation by the officers of the College and Farm. In accordance with a resolution passed during the meeting, the Committee distributed seeds and fertilizers for experimental purposes in various parts of the Province, and those receiving them, very willingly undertook the assigned work. The results will be ready to come before the Union at its next meeting in February, 1887, and from all indications, we think a valuable work will be done in the future in this line by the members.

CONSTITUTION OF THE UNION.

The objects of the Association are to form a bond of union among the officers and students, past and present, of the Ontario Agricultural College and Experimental Farm, to promote their intercourse with the view to mutual information, to discuss subjects bearing on the wide field of agriculture, with its allied sciences and arts, to hear papers and addresses delivered by competent parties, and to meet at least once annually for these purposes.

All officers and students of whatever time shall be entitled to become members of the Union on paying their subscription. The Hon. the Commissioner of Agriculture for the Province of Ontario, the presidents for the time being of the various agricultural societies of Ontario, and such parties as the Association deem it advisable to appoint, shall be honorary members of the Union.

Members shall pay the sum of fifty cents annually. They are eligible to all the offices of the Union, and shall receive gratuitously any reports of the same which may be published after the date of such payment. For any reports previous to their admission they shall pay the sum of twenty-five cents.

Every ex-officer and ex-student, who is in regular accord with the Union, shall be considered as a corresponding member thereof. Each shall be entitled to the privilege of receiving for experimental purposes at least five samples annually of such agricultural

seeds as may be on hand for distribution at the Ontario Experimental Farm. He shall report to the Union the results of such experiments, and also give his experience on such subjects as come within the scope of the Association. Ex-officers and students, who are members, shall be entitled to receive by correspondence, if necessary, such information on the work of the Union or that of the Ontario Agricultural College and Experimental Farm as may be deemed reasonable by the Executive Council.

The Union shall meet annually at the Ontario Agricultural College for one day or more, beginning two days previous to the Easter closing exercises of the institution.

The officers of the Union shall consist of a President, Vice-President, Recording Secretary, Corresponding Secretary, Treasurer, and Editor of Transactions, who shall be appointed annually by the general meeting, and hold office for the ensuing twelve months.

The President, as chief officer of the Union, shall be *ex-officio* a member of all committees or councils thereof during his term of office.

The Vice-President shall have powers similar to the President, but only in his absence.

The Recording Secretary shall keep the minutes of the general meetings of the Union.

The Corresponding Secretary shall conduct all business in connection with the Union in regard to memberships, general meetings, and all the business of the Executive Council, for which purposes he shall be *ex-officio* a member of that council.

The Treasurer shall collect all fees, and keep account of all receipts and disbursements of the Union as may be authorized by the general meeting and Executive Council.

The Editor shall receive, revise, and attend to the publication of such addresses, articles or papers, as may be authorized for publication in the Transactions of the Union.

The Executive Council shall consist of the officers of the Union for the time being. Its duties shall be to prepare a programme for annual general meetings, invite and arrange with parties for the reading of papers, to appoint reception and sectional committees, and transact such other work as has been indicated for it in this constitution, or which may be hereafter authorized by the general meetings.

The accounts of the Union shall be audited annually by the auditors appointed by the general meeting.

No part of the constitution can be altered except at an annual general meeting of the Union, and then only by giving at least three hours' notice of such intended alteration.

SEVENTH ANNUAL CONVENTION.

The Seventh Annual Convention of the Ontario Agricultural and Experimental Union opened in the lecture room of the Agricultural College on Thursday, March 11th, 1886, at 2.30 p.m.

The chair was occupied by the President, Mr. J. A. Campbell, of Simcoe, and Mr. J. P. Anderson, of Puslinch, acted as Secretary. The attendance was about equal to that of former years. Among others, the following members were present:—Messrs. J. I. Hobson, Mosboro'; Jas. Anderson, Puslinch; C. A. Keil, Chatham; L. E. Morgan, Strathroy; E. M. Zavitz, Coldstream; R. F. Holterman, Brantford; J. A. Ramsay, Eden Mills; J. B. Muir, North Bruce; John Morgan, Strathroy; J. Anderson, Jr., Puslinch; George Charlton, St. George; P. A. Carpenter, Collingwood; G. W. Westlake, New Sarum; W. Eidt, Philipsburg West; W. Thomson, Galt; A. E. Wark, Wanstead; O. T. Stamer, Paisley Block; P. Grant, Chatham; W. Robertson, Wanstead; W. Ballantyne, Stratford; A. E. Shuttleworth, Mount Albert; D. A. Black, Listowell; O. A. Chase, Sparta; George McIntosh, Paisley Block; W. Shark, Killyleigh; and W. A. McDonald, London.

After the roll had been called, and the minutes of the last annual meeting read and confirmed, the Treasurer, Mr. R. A. Ramsay, presented his report, as follows :—

TREASURER'S REPORT.

DR.			CR.
Money received from A. E. Shuttleworth,		Paid Mr. Galbraith for reporting.....	\$10.00
Treasurer of last year.....	\$ 3.75	Printing 300 Circulars.....	3.00
Subscriptions received.....	25.50	Two hundred certificates.....	2.00
Special suscriptions from ex-students.....	6.00	Postage and stationery.....	3.65
	<u>\$35.25</u>	Printing 100 programmes.....	2.25
			<u>\$20.90</u>
Cash balance on hand.....			\$14.35

The report was adopted.

The retiring president having briefly reviewed the workings and object of the Union, the following gentlemen were appointed a Committee to nominate the officers for the ensuing year :—Messrs. Ramsay, Shuttleworth, Wark, Campbell, Holterman and J. P. Anderson, the Committee to report at 8.30 Friday morning.

A few communications were received and read, and the Chairman then announced that the next business of the Convention would be the reading of papers on the various subjects selected by the executive committee.

STUDY.

PAPER BY P. A. CARPENTER, GOLD MEDALIST OF 1884.

This is a subject of great moment to every student, and yet one which not a few know very little about. Every student is supposed to study, but is left entirely to himself to learn how to study. Every subject studied has its share of teachers and text books ; but the subject of study itself can only be taught by the student to himself. Yet it is a subject separate and distinct from all other subjects, and as such, it is well worthy of every student's consideration. A student should study how to study.


Generally speaking, we have a two-fold object in study. We want to obtain a knowledge of the subject studied, and we want to develop and educate all our faculties. This latter is often a secondary consideration, but it should never be lost sight of. Indeed it is often advisable to select subjects for the first object solely with a view to their effect on the second. Educated men, and those who have charge of educational matters, generally choose subjects that are best adapted to develop and educate the mind. While the young student that studies the subject prescribed often values it only for the knowledge it contains. He considers it an end what is only a means, and if he thinks the end not worth the time spent in attaining it, he often wants to give it up on that account.

Every student has his own particular way of studying ; some choose the steady, plodding, hard-working style that always tells, while others only study by fits and starts, brilliant at times, but generally woefully deficient in the long run. Still, each one must adopt a style that is best suited to him, and in order to master a subject he should do it one way if he cannot another ; if the old orthodox way won't suit, you find a way that will. Take the shortest, easiest and best way of getting it up. If it takes a year to learn to judge a cow by reading text books, and a month by working about the stables, by all means save the eleven odd months. When a subject can be mastered in a practical way, it is generally easier and better to do so. Similarly in studying a description of anything, if the thing can be seen, or even pictured in the mind, it is generally much easier remembered. Some can remember views and descriptions very easily, while others might soon forget them, but retain facts and lists of names. When one has a good memory, but deficient reasoning powers, he is very apt to study altogether by memorizing. These are generally poor in mathematics, and would rather remember a rule than understand it,

on the other hand, a good reasoner always understands, and goes to the bottom of everything as he goes along, thus he makes less use of his memory, but if he forgets a thing, can generally reason it out, and a thing once learned is always available. Poor reasoners should take every chance to improve themselves by making it a point to understand everything as they go along. When hurried, and especially when studying for examinations, it is often easier to commit a thing to memory than to understand it; however, this is mere waste of time, as it is soon forgotten, and leaves no permanent good. Besides, a catch question on the subject would completely puzzle one who did not thoroughly understand it, the student who follows this plan, must acknowledge that he has spent so much time merely for the sake of standing well at an examination. The sooner a student finds that he has fortitude enough to, in a measure, overlook the examinations and study only for his permanent benefit, the sooner will he realizing the true meaning and value of education. However, while we should not substitute our memory for our reasoning powers, we must not forget the great value of cultivating the memory; it is a faculty very easily cultivated, and, on the other hand, carelessness often makes our memory poorer. If we get in the habit of never trusting our memory, but writing everything down as it occurs, we will soon find our memory for daily events becoming poorer. Thus a business man could not tell you what he paid for a hat a week afterward, while an uneducated laborer would remember the price for a year; still, while the memory may become poorer for some things, it may get better for others, and knowing this, I would make it a rule to memorize only those things necessary to be remembered, and never mind those things that can be found at a moment's notice. Never burden the memory with a lot of facts that can at any time be referred to, but rather make it a point to remember everything that you have to depend on yourself for. A successful student must make good use of his memory, and in order to do this, he must know what to forget, that he may have more room for that which should be treasured up.

In studying such subjects as mathematics, it is a good plan to explain difficult questions to others. In order to make a thing plain to others a person must be very clear on the subject himself, and very often in trying to explain anything you notice your own defects. Trying to explain a thing clearly is very good practice, as it accustoms one to look exactly at what is wanted. Thus we form the habit of thinking and acting right to the point. Ability to do just what is wanted, no more nor less, is attained only by a few, and gives those few a decided advantage over others; they become possessed of that clear, practical mind that at once strikes to the root of everything, and are not apt to waste much time in getting down to work.

While we study chiefly as a means of education, we should study only that which will be of most use to us; an active man that makes good use of what he knows, finds life far too short to spend time reading a great deal that some consider necessary to a first-class education. Indeed, I consider a book-worm that spends much of his time reading what will never be of much use to himself or anybody else, one of the worst educated men of our time. Knowledge is only valuable when we are able to make use of it; unless it can be applied in some manner the time spent in acquiring it is as good as wasted. Of course just how much is useful, each one must decide for himself and to suit himself. What would be indispensable to one person in one walk of life, might be of little value to another; different people require different modes of education and treatment, and a man's chief study should be to know himself, and find out just what he does want. Still, in picking out for ourselves we must not be guided by narrow or prejudiced opinions, because we don't like a subject, or because, at first, we see little of real value in it, is no reason that the study would not benefit us. Very often the very effort required to master a subject is of more value to us than the knowledge gained. Nearly all study is more or less beneficial, even if it goes in at one ear and out the other, it leaves its trace.

 In beginning a course of study, the key to success is method, "Order is heaven's first law," and the farther we go from heaven's decrees, the worse for us. Have a time for every subject, and do everything in its time. When the time for one subject is up, leave it whether you know it or not and go to the next; if you find you cannot get up a subject in a certain time, you must allow more time for it. In this way one finds out exactly the time required for each subject, and, knowing the time at one's disposal, each can have its

proper share allotted to it ; this will save confusion, and prevent some subjects taking nearly all the time, and others hardly any ; but the chief advantage in method is, that it enables one to find out just what one can do. In order to study with any degree of success, a student must know himself ; he must know what he can do, and in what way he can best do it. The more he knows about his own abilities and failings, the better is he able to accomplish his purposes. It is not always the cleverest scholar, the greatest intellect, nor the hardest worker that makes the best student, but the one that is able to make the best use of his own abilities. Method is the great secret of knowing yourself and your studies ; it enables you to handle your studies, your time, and yourself to the best advantage, and will get you into the habit of thinking, planning and systematizing, so as to be able to make the best use of the means at hand. Thus we soon find that some subjects can be best studied after certain others. If we have been at one subject for some time, a change to another entirely different will rest the brain. When studying, always keep the mind concentrated on your work ; allow yourself only a reasonable time to get up a lesson, and make up your mind to do it in that time, and it will not be long before determination forces concentration, and by practice the time required for a certain amount of work will gradually grow shorter. Having too much time at one's disposal is fully as bad as having too little, as one is apt to fall into careless ways of studying, while determination is pretty sure to make up for want of time. Of course one can generally study best in a quiet room, yet if a person makes up his mind to it he can study in a room full of talkers without being disturbed.

As to the best time to study much depends on the student. Some prefer the night, others the early morning. Some can study at any and every time, day or night. Odd minutes can be snatched now and then during the day for study. If a text-book is not handy, the mind can always run over and digest what is already acquired. After meals or much exercise, it is generally best to study light subjects that do not require much effort. Anything needing much reasoning is best studied when the brain is clear and calm, as in the morning. Still, here as elsewhere, each one must find for himself when he can best study certain subjects.

The foundation for vigorous brain work is a vigorous constitution. If the brain is to act clearly, it must be supported by good health. A person in poor health cannot stand nearly as much study, nor study as well as one in good condition. Hence the first requisite to a student is to keep well. Do not study hard enough to over-work the brain and always take plenty of out-door exercise. The brain needs to be rested fully as much as the body. A rest of one day in seven, enables one to do more work in six than could be done in seven continuous days, because a constant strain tends to make the brain dull, while a short rest gives it time to recover its freshness and vigour. Also a few weeks holidays after a hard term's work, have a very beneficial effect. After a good rest one can study much more in a given time, at the beginning than at the end of a term, simply because he has had a rest ; hence, I am no advocate of much study in the holidays ; especially about examination time should one make it a point to be in the best of health and spirits. If possible, study very little while the examinations are going on. The strain caused by writing and thinking while striving to do well, is fully as much as the brain can stand. It is very poor policy to spend a hard night's study before an examination. The mind is sure to be tired and dull, and cannot act as clearly and promptly as when backed up by a good night's sleep. Cramming for an examination is one of the worst evils of our educational system. Still, as long as examinations are conducted as they are now, just so long will most students make a business of cramming. Steady systematic work, from the beginning to the end of the term, always tells. Cramming for a few weeks before an examination is time spent in stuffing trash wholesale, only to be cleaned out and forgotten as soon as the examination is over. Besides this waste of time, it is very injurious to the health ; and about examination time one feels more like taking a week's sleep than on entering a competition in which a calm, clear mind, high spirits and splendid condition are indispensable to success.

President MILLS said that the question of cramming referred to in the essay, was a very difficult matter to grapple with. In his opinion, students would always cram; there was no such thing as putting a stop to it.

Mr. HOLTERMAN agreed with all that was said in the paper. In reference to cramming, he thought there would be many obstacles in the way of overcoming the habit. The questions asked at the examinations should be broad, and the student should concentrate his mind upon those subjects which would be most useful to him in after life.

Mr. MUIR said that the only way to meet with success was by systematic study. His term at the college was over, and he was well satisfied with the knowledge he had gained whilst attending the institution. In the first year he had studied everything, but in his second year, he found by experience that it was best to confine himself to those subjects which were best suited to the walk in life which he intended to follow; he also made a practice of memorizing.

Prof. BROWN said that a point was made in the paper in reference to the style of examinations. He thought that a great many students failed to understand the questions asked. There was a great difference in the way the questions were put.

President MILLS said a great revolution for the better had taken place in the style of questions given to the students. There was less cramming in the schools now than there was some years ago. Enough general questions should be given to help the earnest plodders and pick out the crammers. He advised the students to buy a little book called "Todd's Students' Manual," which, he said, would be of incalculable service to them.

Mr. BROOME advocated outside examiners for the institution.

Prof. BROWN said there were certain objections against outside examiners. The students would be induced to throw all their labour into the examinations and would neglect the lectures. It would be better to have associate examiners, like some of the universities. There would be no difficulty in getting them.

Mr. WARK thought there was too much study on the dry facts. More time should be allowed for reading, and the professor should tell them the best books to read. They did not get enough general knowledge.

Prof. BROWN intimated that he occasionally suggested books which contained useful information.

Mr. SHUTTLEWORTH thought that one night each week should be devoted to recreation. He appreciated fully the sciences taught in the Institution, but thought that if the three hours which were devoted to reading, every other day, were given to agricultural matters, it would be much better.

Mr. HOLTERMAN—Study agriculture at home and scientific matters here.

Prof. PANTON said that each student could study what he wished during the three hours mentioned; it was left to his own discretion. In reference to outside examiners, there was much in their favour; but this Institution could not be compared with Toronto University, and therefore, was not prepared to introduce professional examiners. In the latter institution, a four years' course was gone through, whilst here, the majority of the students barely put in two years. "Just imagine," he said, "an outside examiner from Toronto University, asking questions to the class here on botany and the other sciences; not one-third of them would be properly answered; he would not know what kind of a question to ask and give the student a fair chance. Associate examiners should, however, be employed, and they should be selected from among the ex-students." He thought that cramming could be partly overcome by holding monthly examinations.

Dr. GRENSIDE said that in his profession an outside examiner would be of no use. He always took great pains in explaining the subjects upon which he lectured, and made them as plain as possible. He did not think there was any cramming in the veterinary department.

PRACTICAL FORESTRY.

PAPER BY J. B. MUIR, NORTH BRUCE, ONTARIO.

It is not my intention to enter into a full and detailed history of the conserving and replanting of forest in this paper. Were I to do so, I presume we would require to go back to the time when our ancient ancestor dwelt with his fair consort on the banks of the great river Euphrates, and enjoyed himself beneath the leafy branches of those beautiful trees in the garden of Eden. And delightful it must have been to him then, as it is to us now ; to walk in the primeval forests, and enjoy their health-giving atmosphere and

"Under the shades of melancholy boughs
Love and forget the creeping hours of time."

But I do not mean to linger on the pleasures which our forefathers enjoyed ; I must pass by the ages of antiquity, loaded though they be with useful information regarding our subject, and confine my attention to the forest of the present time.

In this and other provinces of the Dominion, which were at one time covered with trees from shore to shore, we find large tracts of land, where the trees have been entirely removed, and a dreary, cheerless waste exposed to view. Those of us who have the misfortune to live in those exposed places, know and realize what a grievous mistake was made in the early settlement of this country, when they permitted the forest to be all cleared or burned away. The soil has ceased to be so productive, the little streams and rivulets have dried up, greater extremes of heat and cold are experienced, and the climate becomes more variable. Besides this, it requires more fuel to keep our homes warm during the cold winter weather, more food and shelter to maintain our stock, and all out-door work done during the winter is accomplished with greater expense and hardship both to man and beast. Again, we find it much more difficult to raise some of our principal crops. The pasture becomes bare and withered in early summer, owing largely to exposure and the hot dry winds, which sweep along unchecked and lick up the moisture from the parched soil. The raising of fall wheat and clover is not so profitable, and is attended with greater uncertainty, than where we have a due proportion of forest land preserved on each of the farms. The rain, also, as it falls, washes away the soluble constituents and natural fertility of the soil from exposed places, more quickly than in protected districts, and in a very short period of time, we have the land in a state of poverty, altogether unfit for the successful raising of crops.

From a consideration of those facts, we may readily arrive at the just estimate as to the importance of renewing a small portion of the original forest on each of our farms. And in addition, when we consider the history of the different countries in the world, we cannot find one that has made a successful agricultural record, but what has given its attention to forestry as well.

If we go to the distant prairies of the North-West, rich in the elements of fertility and decaying vegetable matter, there men of science tell us that unless the cultivation of trees is resorted to, there can be no great agricultural future in store for that vast territory. Now, if we continue wasting our forests in the future, as we have done in the past, many parts of Ontario will soon be as bare of trees, as the prairies of the North-West. But, fortunately for us, Ontario possesses many far-seeing and able men, who are alive to the importance of saving the timber on their farms, and are seeking to the best of their ability to preserve their forests in a healthy condition. Those men will one day prove to be the backbone of the agricultural wealth of this Province. We cannot find an eminent agriculturist without at the same time finding a forester. Forestry and agriculture are twin brothers ; they must go hand in hand, in order that both may be successful.

To those who are living in the newer districts, where a large percentage of the natural forests are still standing, we would say, be conservative in regard to the wasting of your timber. Where it is possible and convenient to save it, do so. The time is coming when every stick of timber will be valuable, and varieties which cannot now be placed on the market but at a loss, will be increased in value, and made to yield a handsome profit.

Then in order to secure the climate amelioration which bush-lands are known to possess, it is not sufficient that here and there one farmer should be conservative and save his bush-land, while his neighbours pursue the opposite course. He must be "up and doing" as well, arguing, reasoning and prevailing with his neighbours for their own good, for their families comfort and for their countries wealth, to save a portion of the timber-land in its natural condition. Protect it from the woodman's axe, as you would the young and growing crop from the reaper's sythe, and stimulate its production, by planting new and improved varieties whenever a fit opportunity presents itself.

But then there are those who maintain that the timber thus saved will in a few years die off and be of very little use. True, we see some notable examples of this throughout the country; but on the other hand, it is equally true that we can find many examples of reserved timber lands, flourishing in all the beauty of their own native grandeur, pushing out year after year an abundance of foliage, unsurpassed in vigour and richness by the healthiest forests of America.

But if we give the cattle permission to roam amongst the trees, eating and tramping under foot the rejuvenators of the woods, breaking with horn and hoof the rising sapling, tramping the soil from the roots of the trees, and letting in the drying winds, sooner or later our forest becomes but the dried-up remains of former greatness; very little use as a protection, and an eye-sore to all lovers of natural beauty.

Another very destructive enemy to the conserving of forests are the annual summer fires. Thousands of dollars worth of timber are sometimes destroyed in a very few days by one of those forest fires, which sweeps across the country for miles at a stretch, burning everything before it.

To guard against this, we should keep our forests and woodlands as free from fallen and decayed timber as possible. This may be done by taking out the dead and dying trees, and making use of them either for timber or firewood. Their place should be supplied by more profitable trees, and, in time, a very inferior piece of woodland may be made to contain some excellent specimens of the best varieties of timber.

In order to secure this result at an early date, it is well to thin out the poorer qualities in the underwood, and supply their places by more profitable varieties. Care must be taken in this operation, though, not to thin too near the edge of the bush, as by so doing the wind finds an entrance, drying up the soil and upsetting many of the larger trees.

Having thus touched briefly on the more important points to be observed in saving a piece of bush in a healthy state, let us turn our attention to another aspect of the situation, namely, replanting our roadsides and other places with trees. As has been stated in the former part of this paper, large tracts of Ontario have already been stripped too bare of their natural protection. The climate is now more liable to extremes of heat and cold than formerly, changes in temperature are more sudden, and the wind sweeps along with greater force and penetration than in the backwoods. This last remark is especially true in many of the western counties of Ontario, bordering, as they do, on the great lakes, where the wind sweeps along the vast bodies of water, and rushes with unchecked fury across our treeless fields and round our unprotected houses, piling the snow in heaps promiscuously behind the fences in the roads, lanes, outbuildings, etc. Now, if we had clusters of trees around our dwellings, and wind-breaks along the north and west sides of our farms, how different it would all be. Occasionally we meet with a farmer who is taking advantage of the natural protection which trees afford, and is planting groves for wind-breaks around his buildings. As one nears the friendly shelter on a stormy day, he feels as though he were leaving winter's icy blasts for summer's pleasant breezes, so great is the change. Here the severity of the winter's blast is moderated, the yearly consumption of fuel economized, the comfort and healthfulness of the live stock increased, and reater facilities afforded for proper attention to out-door work.

Now, if we consider that tree-planting is a necessity, as many farmers do, it is important that we should adopt some system as a guide to all our future operations. The haphazard system which characterizes the work done by many farmers is a very injurious one, and should be discarded as well as our scrub stock.

In planting we should consider what will be the most profitable size and shape to give the clump, wind-break, or other plantation. We should arrange the trees so as to afford shelter and protection to our buildings, to our fields, and to our stock. The trees should also be planted, when convenient, in rows, so that at any future time they may be used as posts for a wire fence. Again we must select trees suitable for the soil and locality, and such as will be profitable for timber when matured. Yet another consideration would be to plant the trees in such a manner so that they shall be an ornament to the place, hide unsightly objects and give a more pleasing effect to the eye, "for a thing of beauty is a joy forever."

How to make the trees grow, is a question which puzzles many of our practical men when they commence to plant their first trees. The present system of going to the woods in the spring and rooting and tearing out by main force a few fishing-rods, and then planting each in a hole in the ground a few inches in diameter, is a useless one, and in nearly every case results in failure. The few trees that survive usually present a dwarfed, sickly, stunted appearance, compared with their natural condition.

Now, a simpler and much better method of obtaining trees, and one that usually proves successful, is to carefully prepare a plot of ground for a nursery. This should be a free, rich, loamy soil, carefully tilled, and kept free from weeds and grass. Great care should be experienced in keeping the fence well repaired around it, as the stock would cause a serious loss to the young trees if they should happen to break in.

Having carefully prepared the land for the reception of the young trees, go to the woods and select good, thrifty, healthy trees. It is always better to select small trees, (say from eight inches to two feet in height), as the change in their mode of living does not affect them so much. Trees of such a size will readily bear transplanting, and will soon become accustomed to their new quarters. After having carefully planted the young trees in rows in the nursery, they will require to be kept well cultivated for a few years to prevent their being smothered out with grass, and also, to keep the soil loose and moist. Planting the trees in the nursery develops a large number of fibrous roots, and this can only be done under favourable conditions, as when the soil is kept cultivated, etc. When the young trees in the nursery are ready to be removed to their permanent positions, select a mild, damp day in the spring of the year. Have the land carefully prepared for their reception, either by plowing or digging, and in no case plant deeper than the tree stood in the nursery.

And now, in concluding this paper, which is intended only to form a subject for discussion, and to awaken an interest, if possible, in this great branch of farming, let me ask: Why is it that so few of our farmers take any interest in ornamenting their places with trees? Is it because they think that only millionaires and such as are able to command their thousands are able to engage in this business? Or do they imagine that only foreign and expensive trees should be planted? To one and all I would say lay aside those foolish notions, and in the spring go to the nearest woods and select your young trees. Commence at once to beautify your homes, and save your stock from the cutting, wintry blast, and your fields from the sweeping winds. There is no need for us to turn this fair Province into the cold and barren *steppes* of Siberia, while we have plenty of material growing in our midst to prevent it. What we lack is the energy to go at the work; but let us combine our forces and turn again the treeless plains of Ontario into fields bordered on every side with shady fences, and in so doing we shall be able to make our homes more comfortable, our stock shall thrive on fat pastures, prosperity shall meet us on every side, and our land shall yield her increase.

Mr. MILLS asked Mr. Muir if he considered too much of our timber had been cleared away.

Mr. MUIR.—No; it is the unequal distribution that causes the difficulty. Many farms have no bush whatever, every stick having been cleared away. I claim that every

farmer should reserve from fifteen to twenty acres of bush to every one hundred acres of land. A farmer would realize more profit from eighty acres of land well cultivated and protected by bush, than from one hundred acres all cleared.

Mr. RAMSAY, (Eden Mills).—I think it would be wise to do more tree planting, but, at the same time, it is quite possible the thing could be overdone. Farmers should make it a point to leave some of the original bush standing and not clear all the land. Some people do not believe that taking away the forest dries up the springs, but I must say that I do. I do not approve of woodland pastures, as I have found it impossible to have bush and pasture in one. The grass will not grow in an old bush, and the cattle will not let the trees grow in a new one. Money can be made out of a bush by thinning out the old trees for sale, and planting young trees as the old ones are taken out.

Mr. MILLS.—When would you consider the best time for planting—in the spring or fall?

Mr. RAMSAY.—I always plant in the spring; it is much the better, and is more reliable.

Mr. MILLS.—Is there any damage arising from watering them in the heat of the day?

Mr. RAMSAY.—I apply water any time, and have found no bad results. The ground should also be mulched well to keep the roots moist.

Mr. FORSYTH said that in his experience watering did no harm at any time. He preferred mulching, as it retained the moisture around the roots. He was much pleased with the paper, but regretted that it said nothing about the raising of trees from seed. Anything of a loose nature would do to mulch with, such as leaves, straw, chips, saw-dust, and barnyard manure.

Prof. BROWN briefly referred to hedge rows, as compared with rows of trees, and expressed himself as much in favour of the latter. England, he said, was not realizing what she expected from her hedge rows, and we should take a lesson from her. He favoured planting trees on the sides of the farm from which the prevailing winds came.

A memorandum was here submitted by a member, in reference to the sowing of a handful of oats in the hole with the young tree, it being claimed that the people of some countries practised this custom.

Mr. MORGAN (Strathroy), considered that a farm beautifully ornamented with trees was the happiest home on earth, and besides, the trees formed wind-breaks and protected the grain fields. He was not in favour of tall, thin, fish-rod trees, but advocated the planting of soft-maples of stout proportions, with good roots.

President MILLS.—How do you protect the trees?

Mr. MORGAN.—I dig a large hole, and if the soil is not good, I procure soil that is adapted, and pack it well about the roots. I also mulch well, and advocate the driving down of stakes, and placing wire guards around the trees to keep the cattle off.

Mr. A. E. WARK (Wanstead).—I would like to hear from some one who has had experience in raising walnuts.

Mr. C. A. CAMPBELL (Simcoe).—I am now raising several hundred trees, and find that there is more difficulty in raising nut-bearing trees than any other kind. I cannot, however, give much information on the subject, as I have not had sufficient experience to speak with accuracy. I was much amused with the remark made by a member, "That a handful of oats facilitated the growth of a tree." The thing seems to me to be absurd.

A member here explained that he had seen oats sown with trees on several occasions. The oats grew and formed a turf which acted as a mulch, and therefore, was very beneficial.

Mr. RAMSAY.—There is a great difference between nut-bearing and other trees. In transplanting from the nurseries to the farm there was not much risk of losing the trees,

but in taking them from the bush, they invariably died. The oat question he considered as a relic of barbarism. He used stones as a mulch, and his trees thrived. Watering not enough was worse than no water at all.

Mr. FORSYTH.—When the tap-root is cut, the upward growth of the tree is checked, and it branches out from below without any leading shoots. He advised planting seed where the trees were wanted to grow, thereby avoiding transplanting.

Prof. BROWN.—This tap-root is an important point. To-morrow morning I will show you some trees on the farm, and you will see the difference between those which had been cultivated, and those which had not.

Mr. KEIL.—I have planted over one hundred and fifty nut trees, some of them have had the tap-roots cut, while others have not. They all thrived equally well.

Mr. FORSYTH.—I have noticed some trees planted from seed which grew up hardy, tall and straight. Transplanting and cutting the tap-root seems to check the growth, and causes side roots to shoot out.

President MILLS.—I don't believe that the sap from this one root runs separately through the tree, and would, therefore, look to other causes for the check in growth.

Mr. CAMPBELL.—Could it not be traced to the severe weather of the last few winters? The fruit trees have also suffered much lately from some cause.

Mr. JAS. ANDERSON (Puslinch).—I have not had much experience in anything but apple trees. I believe that mulching is better than watering, and that all orchards should be properly drained. I find black muck to be the best mulch.

Mr. LESLIE (Peel), had planted over one hundred trees, and they had all lived. He merely hoed around them; believed there was nothing as good as cultivation.

Mr. LICK referred to the Government grant of 25 cents per tree, and said that the farmers were not taking enough interest in the matter. There was great difficulty in getting trees from the bush to grow after transplanting. Sugar maples would not live in wet land. In planting on the roadside, trees should be placed thirty feet apart, and protected from cattle by a snake-rail fence.

Mr. RAMSAY.—Any municipality can pass a by-law, naming the size of tree to be planted, to get the Government grant of 25 cents. I know where whole lines of trees are dead, a fitting monument of the folly of men who planted for the sake of the Government grant.

Mr. MORGAN.—The law requires that the trees shall be growing for three years before the grant is paid. There is no law to compel a farmer to plant trees—merely a reward offered to those who do so.

Before the meeting adjourned, Prof. Mills invited all present to proceed to the dining-hall of the College, to partake of the matron's hospitality, after which various toasts were proposed and fittingly responded to by members of the Union.

SECOND DAY.

The Union resumed at 8.30 this morning, pursuant to adjournment of yesterday. There was a large attendance present. Mr. J. A. Campbell in the chair.

The Nominating Committee having reported, scrutineers were appointed, and the election of officers for the ensuing year proceeded with. Following is the result:—

OFFICERS FOR 1886-7.

Hon. President.....	Professor Brown, O. A. C.
President.....	A. E. Shuttleworth, Mount Albert.
Vice-President	P. A. Carpenter, Collingwood.
Treasurer.....	R. A. Ramsay, Eden Mills.
Recording-Secretary.....	R. W. Madge, O. A. C.
Corresponding-Secretary	R. F. Holtermann, Brantford.
Editor	C. A. Zavitz, O. A. C.

CREAM GATHERING *VERSUS* CENTRIFUGAL IN THE MANUFACTURE OF BUTTER.

PAPER BY A. E. WARK, OF WANSTEAD, ONTARIO.

The raising of cream by the old shallow pan system is fast going out of date, and will be substituted either by the deep-setting or centrifugal. The farmer who makes butter under the old system in the future will either have to consume it himself or trade it off in our country stores, which is little better than giving it away.

Creamery butter brings the highest price in our market; artificial butter or butterine the second, and farmers' home-spun, third or lowest.

Of the two evils, butterine and farmer's butter, it is hard to say which is the best. Statistics show, that from the 1st of May, 1885, up to date, 10,000,000 pounds of butterine were manufactured in the city of Chicago, and it is calculated that by May, 1886, there will have been 20,000,000 pounds made. Now, these are startling figures, and must influence the market to a great extent. At the Sixth Annual Convention of the National Agricultural and Dairy Association, which was held in New York last month, the President, Mr. Jos. H. Reall, contended that milch cows have depreciated \$10 a head, the land 25 per cent. in value, and that a direct loss of \$1,000,000,000 was entailed on the dairy industry by the manufacture of imitation butter, and by its sale as the genuine article. Now, I hope that this will be a warning to Canada.

You are all aware of the fact that Canada can stump the world in the manufacture of cheese, and taking into consideration the absence of butterine factories, and the non-market for farmers' butter, why not stump the world in the manufacture of butter also?

Creamery butter is of two kinds, namely, that made from cream raised by the centrifugal separator, and that made from cream raised on the deep-setting system.

The first prominent fact in the separation of cream from milk is, that it rises by reason of its having a less specific gravity than the milk with which it is mingled. The average specific gravity of milk is 1,030. The difference between this and 985 brings the cream to the surface. In the deep-setting system, everything being favourable, all or nearly all the cream rises in from 6 to 12 hours, while by centrifugal force it is separated in the fraction of an hour.

In criticising these two systems I will do so from an unprejudiced standpoint, and as I am neither acting as an agent for centrifugal separators, nor interested in the sale of deep-setting cans, I think I am in a position to do so.

In the first place, we will compare the cost of rigging out a factory to be run on the cream-gathering system, with one to be run on the centrifugal system.

CREAM-GATHERING.

Cost of Building.....	\$400
Two 300-gallon vats.....	100
One 250-gallon churn.....	30
One butter-worker.....	12
One test-churn.....	8
Eight gathering cans.....	70
One scale.....	5
One 6 horse-power engine and 8 horse-power boiler.....	400
Sundries.....	25
Total cost.....	\$1,050

CENTRIFUGAL SYSTEM.

Building.....	\$400
Two vats.....	100
One churn.....	30
One butter-worker.....	12
One scale.....	5
One 6 horse-power engine and 8 horse-power boiler.....	400
Three centrifugal separators.....	750
Sundries.....	25
Wear and tear on machines, 10 per cent.....	75
Total cost.....	\$1,800

We will suppose our factories in running order, the centrifugal having cost us \$750 more than the cream-gathering factory. In order to meet my extra expense in starting the centrifugal factory, I must have more per pound for manufacturing.

The farmer's expense in both cases is about the same. In the one he has to furnish himself with cans to set his milk in, and in the other he has to furnish cans for the conveyance of his milk to the factory. In the one case I have the patrons complaining about the cooling of the milk, and in the other they keep growling about the skim-milk having no more nourishment than whey, and sour at that. These two points are where the shoe pinches the farmer, and which ever system can prescribe the best remedy is the one which is going to meet with success.

The trouble of cooling the milk can be easily overcome by laying in four or five loads of ice during the slack time in winter. The farmer can do this at little or no expense. He must build himself a water-tight box with a lid attached; into this set the cans of milk, and fill the box with water, which can be kept cold by throwing in a chunk of ice and closing the lid, by doing this he will greatly diminish the labour of cooling the milk.

Advocates of the centrifugal claim that they can take more cream out of the milk than can be done under the cooling system. If this is so it must certainly be done at the expense of the skim-milk, thus decreasing its value as a food. I maintain that the farmer would realize more by feeding the extra cream—which the separator takes out—to his calves.

“The skim-milk is sour.”

This will invariably be the cry in the hot summer months, especially from patrons living four or five miles from the factory. This is not to be wondered at when we consider the different temperatures, etc., to which the milk is exposed. Milk comes from the cow at a temperature of 90°; it is set aside over night and cools; next morning it is

mixed with morning's milk and the milk hauler draws it, say five miles, to the factory. Here it is heated up to 90° and run through the separator at the rate of 1,000 revolutions per minute, and after all this carried home to the owner.

It is not the quantity of butter extracted from a given quantity of milk, which decides in favour of one system over another, but the quality. I fear that this one word "quality" will greatly retard the progress of centrifugal factories. We have only to look at the results of the Provincial Exhibition held in London last fall, and the Industrial held at Toronto, where butter from both systems were in competition side by side. The first-prize in both cases was awarded the butter made under the cream-gathering system, the centrifugal not even getting a prize. I know of similar cases both in Canada and the States.

From these statements we must come to one of two conclusions—either that a first-class article can not be manufactured by this system, or that centrifugalists are not up to their business.

In either case my opinion is, that the cream-gathering system will be the system for some time to come.

Mr. CAMPBELL, Chairman of the Convention, called upon the farmers present to express their views on the subject. He said it should be thoroughly sifted.

Mr. McDONALD (London), thought that the paper was much to the point. He had been making many enquiries lately in regard to the centrifugal manufacture of butter, and had come to the conclusion that at present the system was not complete enough to go into general use. He had been told in Toronto that the milk from Holstein cows was poor in solid matter, but in his opinion, the soil and grass had more to do with the quality of the milk than the breed of the animal. He would like to hear from some of the old butter-makers in attendance.

Mr. RAMSAY (Eden Mills), said that it was not worth while discussing the subject in this section of the country. The farmers here raised a good quality of stock, and would not sell the milk for centrifugal manufacture. Something should be done towards improving the butter that was now made, and means proposed to judiciously use the milk to raise young stock for export purposes. He was not in favour of the centrifugal process, although it had been said that in Denmark butter made by that system was considered the best and brought the highest market price. The Danes, he thought, were better posted in its manufacture. At all events it had never been a success in Canada. The cattle here were exactly suited for exportation, and the deep-setting is best for the milk. We should be very careful about jumping into this new-fangled system of centrifugal separators.

Prof. BROWN asked the essayist if butterine brought a higher price on the market than farmers' butter, when the buyer was made acquainted with the difference between them.

Mr. WARK replied that butterine took the precedence and highest price on the foreign markets, but not in Canada.

Mr. MORGAN (Strathroy), had not had much experience in the making of butter or cheese, or in the raising of farm stock, and was not posted on the centrifugal system. The essayist had said that Canada should lead the world in butter. This, the speaker thought, was an easy thing to propose but another thing to accomplish. Canadians could make very good butter, but other countries could make equally as good. He knew a gentleman in the county of Middlesex who had competed with the best makers in all parts and had always come out with first honours. This gentleman had attributed his remarkable success, solely to cleanliness in manufacture. Cleanliness was a very important factor and should not be lost sight of. He once knew two brothers, both extensive butter-makers and importers; one was an habitual smoker, the other did not use tobacco

in any shape or form. They both sold their butter through an agent on a foreign market, and the one who did not smoke, always received a higher price for his butter than the one who used the noxious weed. Not being able, in any other way, to find out why this distinction should be made, they at last resolved to change the labels upon the packages as an experiment, and in their next shipment, made it appear that the butter from one belonged to the other, and *vice versa*. In due time a letter was received from their agent, in which that person said, that—strange to relate—a very disagreeable taste or flavour was attached to the butter belonging to one brother, which had never been known of before, whilst the other brother's butter, which had always been marked by this peculiar flavour, was this time pure and sweet, and, therefore, worth $2\frac{1}{2}$ cents more per pound on the market. This convincing test satisfied the brothers that it was the aroma of the tobacco, which had invaded the butter and detracted from its value. He, the speaker, merely cited this case as an example of the effects of cleanliness, and he could vouch for its correctness.

Mr. RAMSAY.—Who smoked ; the man or his wife ?

Prof. BROWN.—You are not in Scotland now Mr. Ramsay ; the women don't smoke in Canada.

Mr. CAMPBELL (Simcoe), said that down his way a short time ago the people were inclined to go into the creamery business. They thought there was more money in it than in cheese, and wanted to give it a trial. The cheese men made a big kick and the matter was thoroughly discussed. Prof. Barrè of the College staff attended one of the meetings held at the time, and gave the farmers some good sound advice, the result was, that after careful consideration, they resolved that it would be unsafe to start a creamery, and they accordingly stuck to the cheese factory, and seem to be well satisfied with the course they took.

Mr. RAMSAY thought the farmers should stick to the cheese factories ; it paid better than butter.

Mr. MORGAN asked what effect turnips fed to the cattle would have on the butter.

Prof. BROWN stated that anything over thirty pounds would effect the milk seriously. Some people's experience differed. One-third of a bushel would leave no marked taste—it was a good idea to mix the turnips with chopped stuff ; it appeared to destroy the flavour.

Mr. RAMSAY.—Does the time of feeding make any difference—say, before or after milking ? I have heard that the centrifugal separator got rid of this turnip taste.

Prof. BROWN.—It is best to feed turnips just after milking. I see by the report of the New York Dairymen's Association, that butter made by the centrifugal system, is of a more greasy nature than other butter ; also, that the texture is affected and it does not keep so long. The leading chemists of the country were at sea on the matter.

Mr. MORGAN did not think it possible that a feed of turnips, given a short time before milking, could pass through the blood and taint the milk at once. He believed it was the continual feeding of turnips that did the mischief, and thought the top was worse than the root. He agreed with Prof. Brown in everything, and thought that mixing the food would be of great benefit. Up his way the farmers considered Prof. Brown's views as sufficient authority on all subjects relating to the farm.

Mr. RAMSAY said, that when turnips were properly housed, they lost a great deal of their disagreeable odor ; chilled, half frozen turnips were the worst for feed.

Prof. PANTON said the testimony of the majority was in favor of feeding the turnips immediately after milking. Experience, he said, teaches that the aroma will pass through the animal and taint the milk. Nearly everyone had a different opinion on the matter, but, taken on the whole, feeding after milking had been proven to be the best.

Prof. BROWN said that in England the cattle were fed on all kinds of roots without evil results. There was something mysterious about it, which we, in this country, had not yet learned.

OBSERVATIONS FROM A TWO YEARS' COURSE AT THE ONTARIO
AGRICULTURAL COLLEGE.

PAPER PREPARED BY T. RAYNOR, ROSE HALL, ONT.

When a young man leaves home for the purpose of gaining instruction in some particular line of operation, or to better his circumstances, he becomes instilled with hope, new desires, and determinations. This is no less true of the student, when he first sets out for a course at the Ontario Agricultural College.

Directly he is thrown upon his own resources, and the sympathies of this cold world, his views of life broaden. He realizes, it may be for the first time in his life, that he is a responsible being, and that upon his individual efforts depends to a large extent, his success in life. As to the degree of responsibility he may feel, depends largely on the training he has received at home, the habits he has formed, and his surrounding circumstances.

I have noticed with few exceptions, that every new student begins the term well, acting out his resolutions with great earnestness and seeming profit. But human nature requires company. In a week or so, the student has formed several acquaintances, the choice of whom as bosom companions soon determines, as a rule, whether or not he will carry on the good beginning he has made.

We conclude from this that great care should be taken by the student in selecting close friends, and that carefulness should be exercised by the authorities in the distribution of new comers.

The first two or three weeks of the student's life abroad seems to be a period of stock-taking, not only with regard to his surroundings and study, but also in the professors and those with whom he may have to deal generally. It is then that his likes and dislikes begin to root; and if the former are not properly nourished, and the latter by all means discouraged, the success of such a student may be considerably impaired. On the impressions made during this brief period, depends to a larger extent, the conduct of students towards their superiors than is generally admitted.

I have noticed too, that if there be any animosity existing in the minds of older students towards those who have the oversight of affairs, or with regard to any of the methods of doing things, more particularly in the outside departments, that it is very contagious, and like contagious diseases, spreads rapidly. This to a certain extent counteracts the impressions previously mentioned, but in the main, I think the assertion holds true. From the foregoing, then, I draw the following conclusions:—

1. That all the instructors, whether outside or in, should be very punctual in the dispatch of business.
2. They should seek to impress the importance of the subject or work, as the case may be, in which they are imparting instruction, laying particular stress upon its practical bearings.
3. They should insist on the work assigned being thoroughly prepared, although it may be argued that young men are old enough, when they enter such an institution, to be impressed with their own responsibility in such matters; but not always the case, as some seem to be more matured in judgment at seventeen years of age than others at the age of twenty-one, due, as before stated, largely to one's early surroundings; and
4. They should seek to know the students individually, as soon as possible, especially the more reserved characters.

The most successful instructors that I have observed are those who are the most practical in their methods of teaching, and hence the necessity of having each department supplied with plenty of the right kind of apparatus. There seems to be nothing so good as the object itself to impress the lesson home on the mind of the student, whether young or old.

In the method of studying, I have noticed particularly a great lack of system on the part of the student. Every one seems to have a system of his own, and, as in the case with respect to political economy, people, if they have not the proper principles, will make some to suit themselves, which, too often, adds but little to their own wealth or to that of the nation. It is much the same in studying. One may appear to be working hard, but some how or other very little appears to be accomplished. There seems to be about three principal methods of studying :—

1. The method of those who start in well for a few weeks, but given to too much company which seeks the gratification of pleasure, get behind, discouraged, and then “throw up the sponge,” until a week or so before the examinations come off. Then relief from work, and shutting down on lectures is wanted. Note books are drawn out from beneath the *debris*, when only about half are to be found, and a general raid is made on their more provident and generous neighbours, to supply the other half. Usually this method results in the pluck and zero scale on the list.

2. That pursued by those who want to get along, but who only like certain of the subjects taught, spending nearly all their time on these, while those which are more distasteful, are studied when the eyes are on the book, but the mind is revelling in some enjoyment, or travelling in some foreign country. Here we may class those who partly understand the subjects, but have no ambition to ferret out the other part. The results of this system are more satisfactory, as it generally shows itself in the pass list.

3. Method, and the most successful, is that in which there is a system, (a) as to the division of time regulated by the subjects to be learned; (b) regarding determination to understand the principles at all hazards; (c) as to the training of the eye and mind to observe and inquire into the causes of things; and (d) commencing to work at the beginning of the term, keeping, if anything, a little ahead of the work (at any rate even with it), and simply reviewing at the end of the term, instead of having to get up all new work. This kind of preparation fills in the honour list.

We conclude, then, that to study successfully it requires attention, observation, an inquiring mind, determination, application, and perseverance. To carry out these principles properly the student requires a healthy and vigorous mind, which acts best in a sound body, and which in its turn demands exercise.

There has been a tendency, on the part of many students, to find fault with the number and kind of subjects taught, owing formerly for the most part, to the limited amount of time for studying; but which, with the more extended time, I presume and hope, has entirely died out. The study of such a variety of subjects has a very refining influence upon the mind of a man, and better fits him for his calling in life. I have noted the dull, listless expression of the eye, seldom turning from the ground before it, on which the possessor was walking, turned to a sharp, searching look, which could only be changed to such a degree of brightness by the refining influence of many subjects, especially those cultivating the powers of observation. No subjects have done more to attain this end than have the different branches of science, drawing the attention to the book of nature constantly open before us, and causing the willing student to see some of its hitherto hidden pictures. I think, however, if some of the subjects taught, by way of lectures, as for instance much of the veterinary department, were printed on sheets, with a space at the bottom, or in books, with blank sheets between the pages, on which to take explanatory notes, that some of the bad effects of so much scribbling, and much of the poor spelling, too, often seen on examination papers, might be done away with to a considerable extent. This would give more time for the practical part of these branches which does the most good in after life.

The necessity of having plenty of exercise to retain a healthy body for a sound mind to work in was referred to in passing. It has been maintained that the work in the outside department is sufficient to supply the demands of exercise. It does help to a large extent; but now, with the increased time for studying and reading, I think the want of a good gymnasium must be doubly felt. And, as it was so humorously and ably

referred to by a fellow student at our last re-union, I quite agree with him, that pillow-fights, broken-down beds and hall raids with water deluges, might become a thing of the past, if a convenient and well-equipped gymnasium was at the disposal of the students. Also this might result in some permanent benefits, as the preservation of property, less cases of hauling up on the carpet, and might afford peace and quietness for the less nervous students to concentrate their minds on their work.

I have also observed that there is more disappointment of the expectations of students in the outside departments, than with the inside training. This is due, possibly, to the fact that students expect too much, in fact a great deal more than was ever intended. Many expect to be turned out first-class farmers, first-class mechanics, and expert gardeners, all in the space of two years, eight months of which time, by many, is spent at home. This may be somewhat overdrawn, but I appeal to the students if there were not some such ideas in their minds before the reality was found out. This impression, though absurd on the face of it, must originate somewhere, and would it not be well to find out the source?

Without the aid of an instructor, much can be learned from observation and enquiry, if the student be willing to apply himself. Too often, however, he waits to have everything handed to him, and thus misses much of the benefits to be obtained in the outside departments.

That students under the old system of work and study sought to kill too much time in order to appear busy, few will deny; and yet, it was quite noticeable, that those who did the least work by killing the most time, found the most fault with the pay they were getting. As a rule, students do not like to work at jobs which are distasteful to them, especially away from home. If they can avoid it they will, and in too many instances those who stand around pleading for the "fat jobs," to keep peace in the family receive them, to the discomfiture of the more willing workers. Without discussing the lack of proper equipment for a more thorough and practical training in the principles of agriculture, I wish to call attention to how the overseers might make attractive some of the more or less distasteful work. I know that it is utterly impossible to please all; yet if the overseers had more time at their disposal to spend with the students engaged at the different operations, explaining the necessity of having the work in question done at the proper time, by the best and simplest methods, and at as little cost as possible, I think greater interest would be taken in the work generally.

Under the past system of doing much of the work by making a job last a certain length of time, the student, almost unconsciously, contracts the habit of working slow and often to little advantage, which will follow him after his college days are over. The object of the overseer should be to make his department the most interesting and attractive by imparting all the information possible in connection with it.

Another fact which has attracted a great deal of attention is, that too many of the students leave the College before the two years have expired. Thus they deprive themselves of much valuable information, and lose many benefits arising from the first year work. This ought not to be, as the ground to be covered properly, should occupy three years, instead of two; but under the circumstances impossible. Why then, it has been asked, do not more stay for their second year? Is it because there is not enough to be learned in the outside departments? This has been one complaint. Another has been that in the first year a number of the subjects taught are quite useless, for instance the chemistry and zoology; of which they do not remain to see the real benefits. This again shows the necessity of the professors fully explaining their positions with respect to the subjects in their charge.

Some have complained (1) that too much stress is laid on the examinations, and the course has been styled a "systematic cram," and (2) that the students are studying more for the examinations than for general information, leaving valuable books in the library untouched, and only glancing at the general news topics, and that studying, therefore, becomes irksome and repulsive. They maintain that if they cannot pass in all their subjects during the first year, that there is no use trying the second year, basing their conclusions on some of the subjects they do not understand, as for example chemistry, one of the keys which help to unlock the great book of nature.

These views, no doubt, arise from the fact that the average education of the farmers' sons, received at our public schools, is not high enough to enable them successfully to take advantage of many of the subjects taught in the College. Hence the necessity, as has been so eloquently and convincingly argued by the President of the College, in his tours through the Province, of a change in our system of education, whereby agriculture, the most important industry of our Dominion, may receive its just dues.

Finally, let us notice briefly some of the benefits arising from a course at the Ontario Agricultural College, (1) After leaving college one takes a greater interest in his work, because he understands much better what he is doing.

(2) It fits him much better to take a social standing in life, in which his influence may be felt, and the world made better by his having lived in it.

(3) It creates a desire to know more about his occupation, by reading along that line what prominent men have to say through the press, and

(4) It enables one to read and talk much more profitably and intelligently, on all topics of general interest, and on those subjects which concern his own occupation in particular.

Now, sir, if I have succeeded in throwing out any hints, which may be of some practical benefit, I shall not consider the time used in preparing this paper spent in vain.

W. H. OWEN, (student) spoke of some criticisms on the College and Farm, that had been printed in some of the papers. He admitted that there were some defects in the outside department, and thought that a proper system of outside instruction had not yet been adopted. He thought that much more instruction on practical work should be given, and suggested the appointment of an Advisory Board composed of practical farmers to assist in managing the farm.

Mr. MORGAN, (farmer), asked to hear the opinions of some more of the students.

R. W. MADGE, (student), said he agreed with Mr. Owen in his remarks about the outside department. As to the interior department, the students themselves are all well aware that the studies are compulsory. He was in favour of making some of the subjects optional, as a great many of the young men who came to the institution to gain a better knowledge of farming, were not prepared to take hold of all the studies imposed upon them; some in fact were not qualified to do so, and became discouraged before the first year was finished, and left the College. He did not think that it was the bad reputation attached to the Farm, which deterred farmers from sending their sons to the College, nor yet had politics much to do with it. He attributed it merely to a want of interest in scientific agriculture. The present regular course of study at the College was first-class in every respect, but the special class was a complete failure. A change should be made in it at once. He was exceedingly well pleased with the suggestions made in Mr. Raynor's paper, and felt that they would be fully appreciated by all. The Veterinary Department was well and thoroughly taught, but the lectures were not of as much practical benefit to the students as they might be; what was wanted was practical knowledge. Mr. Madge next reviewed the Horticultural Department, and suggested that the practical work in this department should run through the whole course. In conclusion, he said that it gave him great pleasure in moving the following resolution, which included all he had to say in reference to the special class.

"That it be suggested, (1) that the special class be recognised, and the course of study extended, including live stock, agriculture, agricultural chemistry, veterinary science, arboriculture and entomology; (2) that all their time be as fully occupied as in the regular class, and that in every respect the class be considered of equal importance with the regular class; (3) that the course extend over two winters, and that the members of the special class be allowed, if desiring, to join the regular class in the intervening season again."

E. STURGE (student) in rising to second the resolution, remarked that he agreed with all the former speaker had said. He thought that the resolution covered all the subjects necessary for such a class. He regretted that the winter holidays extended over such a long period. The Farm Foreman should go around the farm with them, and give practical lectures on farm implements, soil, cultivation, etc. The class should be taken around to visit some of the neighbouring stock farms. He would second the resolution.

C. A. ZAVITZ (student) said the regular course at the Institution was an excellent one, but many of the farmers' sons came here with very little education, and as a matter of fact found it next to impossible to keep up with all the subjects. Two ways existed of remedying the evil: First, by having science classes established throughout the country where young men could gain a preliminary knowledge in botany, chemistry, etc., and consequently be better prepared to properly master the work after entering the college; Secondly, the formation of the special class referred to in the resolution. He approved of having the lectures in veterinary science and those of some other subjects printed, and fly-leaves attached for taking notes. In relation to the outside work, he said that in his opinion lectures should be given in the stables, where they could be practically illustrated, with stock of various kinds. This would, if carried on systematically, no doubt result in much benefit to the students. He would like to see more lectures on the field, tools, implements, etc.

J. P. POE (student) thought there were not enough lectures on agricultural chemistry and live stock, and that a large proportion of the whole number of lectures, should be on these subjects. He also suggested that the studies on natural sciences be made optional. He thought that for an inducement for students to return for their second year, the tuition fee should be dropped, and they should receive more privileges than those in the first year. He supported the resolution.

It being 12 o'clock, the meeting adjourned.

The Union met again at 1.30, and the discussion was resumed.

A. E. SHUTTLEWORTH (Mount Albert), said he had been to the college longer, and was connected more closely with agriculture, than most of the students, and could probably enlighten them on some points. He believed in the College being a professional institution, and the Farm a model farm. He disapproved of cutting off a single subject from the list, and condemned a special course, until after the first year had been completed. No pupil should enter the College at less than eighteen years of age, and he should p in at least one year with a practical farmer, and have attended a science school before coming here. He said it was impossible to turn out a skillful farmer in two years, and another year should be added to the course. One hundred acres of the Farm should be set apart as a field for instruction with necessary implements, and four hundred acres as a model farm. Three teams and three instructors would be required, and a certain portion of the students could be sent out daily to receive instructions in practical farming. The second year students to manage the farm and get pay for it. The summer months could be spent in learning how to sow, plough, etc., and in the winter the time would be devoted to science and the live stock. He felt satisfied that the four hundred acre model farm would pay.

Mr. SLEIGHTHOLM (student) said that this discussion should be for the ultimate good of the College. In his opinion the course all through was a good one, but he considered that there should be a special professor of agriculture for the outside department—one who could teach us how to go about our work in a practical, systematic manner. This Institution cannot be, a model farm, agricultural college, farm of instruction and an experimental farm, all in one; each branch should be distinct of itself, and under the management of a separate professor, who would be held directly responsible to the government for his actions. He thought the winter vacation was rather long, and he did not approve of the officers of the College spending so much time in organizing farmers'

institutes throughout the country. In reference to the lectures on veterinary subjects, he thought it would be advisable to have them printed, as much of the student's time is lost in taking notes of these lectures, which would otherwise be devoted to gaining practical knowledge from the professor. He would, therefore, move the following resolution :—

“It is respectfully suggested that the lectures on veterinary science, as now given at the Ontario Agricultural College, be printed and bound in book or pamphlet form, and that one copy be supplied to each and every student. That the student pay cost-price for such book or pamphlet, and that it be printed not later than October 1st, 1886.

Rev. W. F. CLARK made some highly interesting remarks on the history of the Institution, and thought that the subjects of agriculture and live stock, should receive more attention than all the other subjects combined. He thought that the reason more farmers did not send their sons here was because they could not spare their labour from their farms, and not because they did not think well of the Institution. He favoured the printing of the lectures on veterinary subjects, thinking it would result in much advantage to the students.

President MILLS said he felt some delicacy in saying anything; he was perfectly willing to make any modifications in the class, that would be of benefit to the students. In regard to the special class, he would say the only objections he had was that Prof. Brown and Dr. Grenside had not the time to give enough lectures to keep the students engaged, and the average young man, if left to himself, usually falls into idle ways. This was the only difficulty which presented itself to him, and he was in favour of any plan, which would economise the student's time.

Prof. BROWN said that the management had not secured that system of outside instruction, which they would like to have; but unless some other system was adopted, and a farm set aside for the purpose of instruction, no great changes could be made. At the Michigan State College, after twenty-six years and with one instructor to every ten students, they have failed to turn out the young men in two years time in shape to assume the management of a farm; and these colleges were surprised to find, this College was still working on the old system and succeeding.

President MILLS: “We are far ahead of any other agricultural college in America to-day.”

JOHN J. HOBSON, Mosborough, said he thought the reason more farmers did not send their sons to the College, was that they were conservative in their habits, and thought their sons could learn enough at home. This was the only reason why they did not send them to the College. The Institution, he said, would yet do much towards removing the stigma which was at present attached to the name of “farmer” and would raise the farmers' sons to the same prominence, as that attained by men in other professions.

Mr. HOLTERMAN remarked that the very best young men of the Province were attending the College. When the farmers first settled in Canada, he said there was very little scope for education, but that day had long since gone by. There was no reason now why the farmer's son should not be just as enlightened as men in other professions.

Mr. MORGAN thought that if the mind were trained to literary pursuits when young, it would seek literary pursuits in after years, and the same might be said in regard to improved agriculture. He expressed himself as having been very much interested in the discussion. He was proud of being a farmer, and he believed that farmers' sons should be well educated. He had come a long distance in order to be present at this union, and he considered that the information, which he had gleaned on many important subjects, much more than repaid him for the expense he had incurred. He was well pleased with the management of the Institution, with the appearance of the farm, and above all with the manner in which the students had conducted themselves during the discussion.

Mr. MADGE's resolution with reference to the special class, and that of Mr. Sleight-holm suggesting that the lectures on veterinary subjects be printed, were then voted on and carried unanimously.

BREEDING STOCK.

A PAPER READ BY MR. JOHN MORGAN, STRATHROY, ONT.

I regret to say how few farmers, comparatively speaking, understand the principles of breeding, and succeed in improving their stock.

Breeding is a branch of knowledge to be secured by study, also an art to be acquired by experience, and a knowledge of its principles shows us how to produce and reproduce what we want. Prof. Darwin says, not one man out of a thousand has sufficient accuracy of eye and judgment to become an eminent breeder. If a person gifted with this quality studies the subject for years, devoting all his energies to it with an indomitable will, he will and must succeed. If he does not possess the requisite qualities of making improvement, he will surely fail. A man with a natural quick eye can pick out an animal which an untrained or unexperienced man would not admire, while others cannot detect qualities in an animal by any practical skill or knowledge, but judge in a sort of hap-hazard process, which is not all commendable.

The handling of animals is by no means a particular gift or endowment, but a quality and qualification, which should not be lost sight of.

The qualification of a breeder, by far the least easy to be accomplished, is to judge the proper maturing. This is a knowledge by few men possessed and recognized with anything like fitness. There is a law of variation in nature as well as of similarity, and our highest ambition should be not to accomplish a stationary uniformity, but a steady progress towards the perfection of our stock. We must seek to discover how to turn the law of favourably variation to account and secure and perpetuate valuable characteristics, when we get them, as in life all nature is born of sexual union. There is potent sexual union to determine the progress of the race.

In selecting male animals, always fix on those of strong masculine character and with striking male characteristics; supposing they are not high in flesh, good feeding will put that right, if you have the constitution. Still I would recommend an animal of a fleshy nature, to have a broad level top, deep and even underneath, deep heavy flank, full quarters, stately head and neck, and, by all means, of a quiet disposition. The sire to possess a masculine appearance does not follow that the female will be of a coarse quality.

Always prefer a male with a higher tone of pedigree, to those of a lower; if animals are equal in other respects, then add judgment at all times to pedigree, as animals on paper are not always the most desirable.

You must learn to determine at a glance what to cull and what to breed from. This is one of the greatest natural gifts of a breeder's success. It is generally conceded that the male animal has the more influence in breeding, but not always; doubtless it is the animal, whether male or female, with the strongest vitality, that stamps itself more powerfully on the offspring.

The selection of animals for maturing purposes (which evidently is now the main point) is perhaps one of the great secrets of breeding successfully. The soundest animal has the greatest vitality, and the animal with the strongest vitality is the best, soundest and surest breeder. It is the relative peculiarity of the parent that determines the nature of the offspring. In breeding you must properly mate the male and female, in order to accomplish a successful issue. In a herd, say of twenty females, you should have at least two males of different lines and of the highest order of course, in order to suit the adaptability of the females. We have seen in some cases where an inferior looking male produced on one class of females better offspring than that of a superior looking male with the same female, simply because they were properly mated. Now then, if you follow out this theory you can remedy the imperfections in your animals, (if any), and correct accordingly; if you do not carry out this system you are as likely to aggravate the defects as to remedy them.

Docility in the male is a very essential qualification, as the more docile an animal is the more likely he is to have the fleshy qualities, which is a very important trait in the bovine race.

Every male should be tested before placed at the head of a herd of any note, then you will be breeding with safety, as one female may be the mother of one calf in twelve months while the male may be the sire of seventy, hence the necessity of having the male animal the superior, as in laying the foundation of a good herd. The breeder should have in his mind's eye what he wants to accomplish.

In selecting animals to breed from you must always choose the superior one of the herd, and as near as possible reach the ideal you want.

In order to succeed you will have to spend years of toil in culling and reculling, in selecting and reselecting, before you can attain the highest point of perfection, and when you have succeeded in that attainment, you can congratulate yourself as having accomplished as much for your country's good, as the bravest hero who has conquered nations.

As regards in-and-in breeding, I am not a very strong advocate of it, but I am aware in some cases it will prove to an advantage, if proper care is taken as to the constitution and construction of the animal, as for instance, you have a first-class male or female, (as the case may be), by breeding to blood relations, you will get more of the original blood in the cross, and the progeny of that cross, if a male, will stamp more fully in his stock the noble blood of his ancestors. This, where you want to retain more of the original blood of either, will prove a boon of success. Some breeders advocate, breed the best to the best regardless of affinity; but always study formation and constitution; it was this principle that brought Collins, Bates and Booth to such perfection. But now since the different lines of cattle have become so numerous, you can breed best to best of other blood with safety. The laws of nature prohibit in-and-in breeding in the superior race and why not in the inferior?

EXPERIMENTATION WORK.

Mr. J. P. ANDERSON called the attention of the Convention to the fact that the Union had been organized for the purpose of making experiments, but of late years had gradually been drifting into a debating society. The Minister of Agriculture had granted them the sum of seventy-five dollars, and he (the speaker) would like to know what was going to be done with it. He would be very much pleased to see some experiments made during the coming season.

Mr. CAMPBELL thought that so long as members of the Union confined themselves to debates, the government would give no regular support to it. Something should be done without delay towards getting things in shape for experimenting this summer.

President MILLS thought Mr. ANDERSON's suggestions were correct, but they could not be successfully carried out unless some of the officers at the College interested themselves in the matter. There was a lot of work to be done in connection with the matter. Seed must be sent out to those who were willing to experiment; letters should be answered promptly and a great deal of other work done to make the thing a success.

Mr. ANDERSON remarked that more progress would have been made if the Union had not been short of funds.

Professor BROWN advised the Convention not to do anything unless they could see their way clear to make it a success.

Mr. HOLTERMANN said that he was in favour of the students giving their views from year to year at the meetings. No satisfactory results had yet been attained from previous

experiments. The time of the Convention was taken up too much with debates; more papers on agriculture should be read, and less time occupied in useless debating.

Mr. ANDERSON asked what was going to be done with the seventy-five dollars granted by the Minister of Agriculture.

Mr. CAMPBELL wanted a few experiments of some kind made, even though they were on a small scale.

Professor JAMES said that each member of the Union should be an experimenter himself, and report at the meeting next year. He did not think they should want for assistance from the Government, but on the contrary, go right ahead, experimenting in the field, garden, dairy, or elsewhere, and report the result at next session of the Union. He would be only too happy to assist them all in his power.

On the suggestion of President Mills, the matter was finally settled by the formation of a Committee composed of the following gentlemen: Professor Brown, Professor James, Professor Pantou, and Messrs. Anderson, Ramsay, and Zavitz, to confer with the Minister of Agriculture, and make necessary arrangements for future experiments.

REPORT OF EXPERIMENTS CONDUCTED BY MEMBERS OF THE UNION IN 1866.

The object of the experiments was to test the effects of salt, gypsum or land-plaster and superphosphates upon wheat, oats and barley.

The plots were one-fortieth of an acre in area in each case.

The cereals sent out were twelve pounds of white fife wheat, eight and a-half pounds of barley, and seven and a-half pounds of black tartarian oats, each for four plots or one-tenth of an acre.

The fertilizers were ten pounds of salt, ten pounds of gypsum, and ten pounds of superphosphate. The analysis accompanying the superphosphate was as follows:—

Phosphoric acid, thirteen per cent.; ammonia, two per cent.; potash, one and a-quarter per cent.

Each experimenter would, therefore, have wheat, oats or barley growing on four similar plots treated as follows: One, no manure; two, salt; three, gypsum; four, superphosphate.

Grain and fertilizers were sent to twelve members of the Union, wheat to four, oats to four, and barley to four. Eight completed the experiments and replied in full; four made incomplete reports.

The experimenters were requested to observe and report upon the following points:—

1. Previous cropping and fertilizing.
2. State of soil and condition at time of sowing; date of sowing.
3. Time of appearance of grain on each plot.
4. General growth and comparative condition of grain on the four plots, from time to time.
5. Date of maturity and harvesting.
6. Weight and condition of straw and grain, separately.
7. General observations on the weather.
8. Conclusions as to the value of each of the fertilizers.

	Experimenter.	Grain.	Fertilizer.	Straw in lbs.	Grain in lbs.	Total.	Soil.
I.	J. B. Muir, Bruce Co.	Wheat ...	No fertilizer	46—10 lbs chaff	32	88	Clay loam to clay, with clay sub-soil.
		" ...	Salt	42—10 "	34	86	
		" ...	Gypsum	44—9 "	33	86	
		" ...	Superphosphate ..	50—8 "	34	92	
II.	J. G. McKay, Bruce Co.	Wheat ...	No fertilizer	73	21	94	Clay loam.
		" ...	Salt	60½	19½	80	
		" ...	Gypsum	73	21	94	
		" ...	Superphosphate ..	66½	16½	83	
III.	E. M. Zavitz, Middlesex Co.	Wheat ...	No fertilizer	57½	23½	81	Clay loam inclined to loam, gravel sub-soil
		" ...	Salt	77	36	113	
		" ...	Gypsum	62½	27½	90	
		" ...	Superphosphate ..	58	23	81	
IV.	T. Raynor, Pr. Edward Co. (See notes below.)	Barley ...	No fertilizer	8	12	20	Clay loam.
		" ...	Salt	10½	15½	25½	
		" ...	Gypsum	10½	14½	25½	
		" ...	Superphosphate ..	9½	13½	22½	
V.	Geo. Charlton, Brant Co.	Barley ...	No fertilizer	35	35	70	Clay loam, with clay sub-soil.
		" ...	Salt	43	39	82	
		" ...	Gypsum	43	37	80	
		" ...	Superphosphate ..	43	38	81	
VI.	C. A. Keil, Chatham	Barley ...	No fertilizer	39	42	81	Rich alluvial soil.
		" ...	Salt	28	33	61	
		" ...	Gypsum	28	31½	59½	
		" ...	Superphosphate ..	34	35	69	
VII.	E. Lick, Ontario Co.	Oats	No fertilizer		32½	Poor clay loam, inclined to gravelly nature.
		"	Salt		32½	....
		"	Gypsum		26½	....
		"	Superphosphate ..		32	....
VIII.	A. L. F. Lehman, Simcoe Co.	Oats	No fertilizer	23—4 chaff	31	58	Clay loam.
		"	Salt	20—4½ "	28.5	53	
		"	Gypsum	22—8½ "	21.5	52	
		"	Superphosphate ..	22—5 "	26	53	
		"	Farm yard manure, 20 tons per acre.	33—6 "	33	72	

Average of experiments on—	Experimenter's Nos.	Fertilizer.	Straw in lbs.	Grain in lbs.	Total in lbs.
Wheat	I, II, III.	No fertilizer	62.25	25.42	87.67
		Salt	63.17	29.83	93.00
		Gypsum	62.92	27.08	90.00
		Superphosphate	60.83	24.50	85.33
Barley	V., VI.	No fertilizer	37.00	38.50	75.50
		Salt	35.50	36.00	71.50
		Gypsum	35.50	34.25	69.75
		Superphosphate	38.50	36.50	75.00
Oats	VII., VIII.	No fertilizer	27.00	31.75	58.75
		Salt	24.50	30.50	55.00
		Gypsum	30.50	23.87	54.37
		Superphosphate	27.00	29.00	56.00
All complete reports of crops.	I. II. III. V. VI. VII. VIII.	No fertilizer	47.96	30.99	78.95
		Salt	47.50	31.78	79.17
		Gypsum	48.37	28.21	76.83
		Superphosphate	47.58	29.21	76.50

The following observations and notes were made by the experimenters :—

I.—*J. B. Muir, North Bruce.*

Previous Cropping.—Previous to 1886 no systematic course of cropping had been adopted, but corn, potatoes, millet, etc., had been grown upon it from time to time.

Previous Treatment.—For the past eight or ten years it has been plowed in autumn and generally received from ten to twelve loads of barnyard manure per acre yearly. A small quantity of wood ashes were thrown upon it from time to time every winter. In September, 1885, a light topdressing of fresh meadow muck was spread, and allowed to be exposed for the winter.

State of Soil, Etc.—Land selected was in fair state of cultivation, and not exhausted by previous cropping. The surface soil varies from a clay loam to clay, with heavy clay sub-soil, only partially drained, on gentle slope to east and south.

In spring of 1886 weather was wet and cold. Land plowed May 12th, then harrowed, rain prevented sowing till 18th.

Appearance of Grain.—First blades on gypsum plot on 23rd, on 24th large percentage up in all plots; wheat came out quite thin.

Weather.—Severe frosts early in season, dry later on. In time the plots fertilized by salt and superphosphate became more healthy and vigorous looking than the other two, especially the plot where no fertilizer was used. During the latter part of June and early part of July, quite a percentage of this latter plot turned yellow in the leaf, and was very unhealthy looking for a time. As the season of growth advanced, the salt and superphosphate plots became more uniform and healthy-looking than their companions, and after the grain shot out, the salt plot seemed to gain on its rival, ripening a day or two earlier; had a brighter, stiffer and healthier-looking straw, and when threshed, a plumper and more uniform grain.

On 22nd August, wheat on salt plot was ripe and ready to cut, on 24th all were cut. Had the grain on the superphosphate plot filled out as well in proportion, as that from the salt, it would certainly have ranked first in point of yield, as there was a more vigorous growth of vegetable matter from this plot, than from any of the others.

Conclusions.—From the results of this experiment, I consider salt to be the most economical and beneficial fertilizer to apply to our land at the present time. It is inexpensive and convenient, may be obtained in abundance in this locality, and would certainly be used profitably, even if there was no greater return than the improved quality of the grain it would secure. Judging by the return from the superphosphate plot, it would not pay to use this fertilizer at present prices on our land. Gypsum, apparently, has no value, and is not required by the land in our locality.

II.—*J. G. McKay, Underwood P. O., Bruce Co.*

Previous Cropping.—Last crop peas; land never manured before; four crops taken off since broken up from sod soil.

Sowing, Weather, Etc.—Sowed wheat forenoon of May 14th, rained seven p.m. of same day. Fore part of season was very dry (June). July 7th doing fairly well. On July 15th the salt plot headed out, superphosphate plot half headed out, gypsum plot just starting. July 20th all headed out. August 13th heavy hail, which hurt the grain, shelling about one-fourth. August 16th, rain, salt plot the ripest. August 23rd, rain all day. August 30th, salt plot cut. September 1st, other plots cut; superphosphate plot being a little riper than the gypsum. The salt plot had a little more clay in it than the others.

III.—*E. M. Zavitz, Coldstream P. O., Middlesex Co.*

Previous Cropping.—Roots up till last two years, when plots 1 and 4 were under strawberries; only manure has been barnyard.

Growth of Grain.—Sowed on April 28th, soil moist and mellow :—

Grain on plot No. 1	appeared May 6th.
“ “ 2	“ “ 8th.
“ “ 3	“ “ 7th.
“ “ 4	“ “ 6th.

They seemed to keep even until the time of the drouth, when the salt plot appeared to hold out rather the best.

Condition of Grain and Straw.—The straw of No. 2 was a little the brightest, the rest about the same. After careful examination, we concluded that the difference in quality of grain was slight, and in the following order from best to poorest: Nos. 2, 3, 4, and 1.

Conclusions.—The exceptional drouth seemed to give the salt plot an advantage over the rest. Had it been a wet season the results might have been materially changed, even reversed in some cases. Could we foretell the nature of the season, we might choose more wisely, but under existing circumstances we must draw conclusions from the aggregate of advantages and disadvantages of each fertilizer, not only the aggregate of the dozen little experimental stations of this year, but of a number of years. We feel well repaid for having undertaken the experiments, in the insight we have gained in experimenting. We intend to act on the result obtained by sowing the wheat next spring from all the plots and fertilizing with salt.

IV.—*T. Raynor, Rosehall, Prince Edward Co.*

Previous Cropping.—Barley in 1885, then light coat of farm yard manure.

Soil.—Clay loam, plowed once in fall and ganged again in spring; in fair condition. but not so fine a seed bed as is desired. Sowed May 4th, plots somewhat wet. It was harrowed over twice after the fertilizers had been applied.

Appearance of Grain.—It was all above the surface in a week, or perhaps less time. No. 4 first showed itself distinctly. The other plots seemed to come up and grow about alike.

Growth of Grain.—Notwithstanding the fact that the grain was too thick it grew quite uniformly most of the time. Plots 1 and 2 grew somewhat ranker towards close of growing season. Being so thick on the surface the straw was made finer, and the head much smaller than it otherwise would have been.

Maturity.—About August 1st plot No. 4 had matured four or five days before the others. The straw was fine, a fair color, of medium length. That from No. 2 was a little the coarsest, I think. The grain was partly coloured and partly bright—about No. 2 extra. It was plump, however; in other ways a good sample.

The weather at time of seeding was everything could be desired. The seed sprouted quickly and grew rapidly with the refreshing showers. The weather changed, however, becoming cold and very backward for two or three weeks, and finally a drought setting in indicated a short crop. Towards harvesting time, the weather became once more favourable and with the few warm showers a good crop was harvested after all.

Conclusions.—From results obtained I must acknowledge the salt to be the best, although I think the position of one and two were a little advantageous. I do not think that salt acts directly as a manure, but indirectly, aiding in splitting up other constituents into soluble plant food. Salt has been used before in this vicinity, and with good results.

The gypsum gave even better returns than the superphosphate. However as a fertilizer I think it is much better for leguminous crops than for the cereal crops.

There is no doubt in my mind that the superphosphate is a far better manure for barley than the others. It is quick in its action and causes a more rapid growth. A rapid growth means early maturity, and on the whole I am somewhat prejudiced in favor of the phosphate for barley.

In conducting this experiment I discovered when too late that only one-quarter of the land necessary was taken. This will account for the small amount of grain and straw. If the results were multiplied by three, a fair average would be obtained.

V.—*Geo. A. Charlton, St. George P. O., Brant Co.*

Previous Cropping.—The soil the previous year was under roots and had farm-yard manure applied at the rate of twenty loads per acre. Soil is a clayey loam and at time of sowing was in the best possible condition.

Growth of Grain.—Sowed May 8th; by May 14th all plots were up equally well. No difference apparent in growth from time to time except that No. 3 had a deeper shade of green. A difference was perceptible in the time of maturing, No. 2 (salt) ripening fully three days sooner than No. 3; No. 4 maturing sooner than No. 3 but not so soon as Nos. 1 and 2. All were ripe and harvested July 20th.

Condition of Grain.—No. 1, heads short; straw had a tendency to remain green and the barley contained a considerable percentage of small grains, though of good colour.

No. 2 straw bright, and stood up well, heads well formed; grain of a good colour, plump and very few of small size.

No. 3 same as No. 1, except that the percentage of small grains was less.

No. 4 straw seemed soft, had a tendency to lodge and coloured rapidly with dews and sun; heads large and well formed; grain slightly coloured yellow but plump with few small grains.

Weather.—During the experiment the weather was warm and moist first half, but latterly dry and hot, which, I think, was the reason why the yield was not greater.

VI.—*C. A. Keil, Chatham, Ont.*

Previous Cropping.—From 1879 to 1885, potatoes (farmyard manure), barley, potatoes, fodder corn, sugar beets, flax (farmyard manure), oats. Land has been cropped for twenty-five years, no special fertilizers ever having been used. It is drained by an open creek near by, no under-drains. The soil is a clay loam with considerable percentage of humus having a clay sub-soil.

The land was plowed April 21st (rather late for us), barley was broadcasted next day and fertilizers broadcasted afterwards. The ground was not in very fine condition and the weather was very warm.

Growth.—From date of sowing till harvesting we had very little rain fall, and the barley did not stool out as it should have done. The only difference in all the plots was that the salt plot could be easily distinguished from the others by the whiteness of the straw and grain.

It was cut July 21st and threshed; November 25th; although not a heavy crop, the sample was good. Salt was number one, gypsum number two, the other two equal. I also sowed salt on our field of barley, and also fall wheat, leaving some strips unsown. I could never see any difference in the growth or maturity except that the straw was brighter where the salt was sown.

The land in this part of the country being of a rich alluvial nature, if moderately well worked and manured with farmyard manure will yield good crops for a great many years, and I think the benefits derived from special fertilizers would not compensate for their cost. Salt and gypsum would be useful in diminishing the quantity of straw and especially salt, very materially brightens the grain and straw but superphosphate would not pay. The extreme dry weather may have affected the action of the manures, but it is rather strange that the "No Manure" plot came out the best.

VII.—*Elmer Lick, Oshawa, Ont.*

Previous Crop.—Oats seeded to Alsike clover, the portion under experiment winter killed. In 1884 barley. In 1883 peas, on three year old sod. A light dressing of barnyard manure was applied in fall of 1883.

Soil.—It is a poor clay loam inclined to be gravelly. It was plowed May 14th; was very wet owing to spring rains and low situation.

Grain.—On May 17th oats and fertilizers were sown. June 23rd, a much darker and more luxuriant growth could be noticed in the superphosphate plot. Dry weather following, the salt soon gave the best appearance. After every rain a very noticeable improvement could be seen in No. 4 plot. No difference in Nos. 1 and 2. July 22nd, Nos. 1 and 2 headed out, 3 and 4 a few days behind and not looking so well as Nos. 1 and 2. Just before harvesting Nos. 2 and 4 were equal in appearance, only slightly better than No. 1. No. 3 was very inferior to the others.

August 23rd.—Ripe and harvested; no difference could be noticed in ripening, owing to rust.

The quality of the grain was best on No. 4, then No. 2, No. 1 and No. 3 in order. There appeared to be more straw on 2 and 4 than on 1, and more on 1 than on 3. No. 3 was badly rusted, No. 1 not so badly, and Nos. 2 and 4 were comparatively free from rust.

The late sowing and rust account for the low yield (under forty bushels per acre).

The dry summer gave the salt a good chance, and hindered the superphosphate from showing the effects of its application.

The land was poor, scarcely ever giving over thirty-five bushels of oats, twenty bushels of peas, or twenty of barley to the acre.

Conclusions.—From the above experiment I would conclude that gypsum was an injury to the crop; that salt would pay in dry seasons, through the straw being freer from rust; that superphosphate in dry seasons would not pay for its application. All the above applying to land similar to that under experiment.

VIII.—A. L. F. Lehmann, Orillia, Ont.

Previous Cropping.—Oats, preceded by peas.

Soil.—Clay loam, plowed in fall and spring.

Grain.—Sowed on May 8th, appeared on 17th and 18th May.

June 1st.—Superphosphate and gypsum ahead, then farmyard manure, then salt and no manure. June 15th.—Farmyard manure improving. June 30th.—Salt and no manure still behind, others even. July 7th.—Farmyard manure decidedly ahead, and heading out, the others evenly advanced. July 12th.—All headed out. August 23rd.—Grain matured. August 30th.—Cut; rainy weather preceded this. September 4th.—Threshed. All grain was “dead ripe” except that of the farmyard manure, which still contained some green stalks. The season was a dry one, with the exception of seeding and harvesting time.

Conclusions.—My conclusions are, that the soil, on which I experimented, has been deficient only in nitrogen. The barnyard manure was of an inferior quality. As clay predominates I think sufficient potash was present.

As far as I know no similar experiment has been conducted in this neighbourhood.

I was much astonished to find all the special fertilizers have an injurious effect upon the soil on which I experimented, but in a previous experiment with superphosphate on potatoes on sandy soil, I found the same injurious effect.

RESOLUTION OF CONDOLENCE.

On motion made and passed, a resolution was drawn up and ordered to be forwarded to the family of the late Doctor HARE—a former member of the College staff—expressing the heartfelt sympathy of the union upon the early demise of their late friend and fellow member.

14

REPORT
OF THE
MINISTER OF EDUCATION.

REPORT
OF THE
MINISTER OF EDUCATION
(ONTARIO)
FOR THE YEAR 1886,
WITH THE STATISTICS OF 1885.

Printed by Order of the Legislative Assembly.



Toronto :
PRINTED BY WARWICK & SONS, 26 AND 28 FRONT STREET WEST,
1887.

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STATISTICAL REPORT, 1885.

REPORT
OF THE
MINISTER OF EDUCATION
FOR THE YEAR 1886,
WITH THE STATISTICS OF 1885.

TO THE HONORABLE JOHN BEVERLEY ROBINSON,
Lieutenant-Governor of the Province of Ontario:

MAY IT PLEASE YOUR HONOR:

I herewith present the Report of the Education Department for the year 1886, together with the statistics for the year 1885. The several comparative statements submitted will, I trust, be found worthy of perusal.

I.—PUBLIC SCHOOLS.

.1—SCHOOL POPULATION—ATTENDANCE.

School Population.

By the School Act the assessor is required to take the census of all persons between the ages of five and twenty-one, and, also, of the number between seven and thirteen. From this census the Report sent to the Department is made up—its accuracy depending, of course, upon the care with which the assessors do their work. The following comparative statement shows the school census for the last ten years :

YEAR.	School Age.	School population.	Pupils under 5.	Pupils 5 to 21.	Pupils over 21.	Total number of pupils registered.	Boys.	Girls.
1876.....	5—16	502250	.....	489664	873	490537	260809	229728
1877.....	5—16	494804	1430	488553	877	490860	261070	229790
1878.. ..	5—16	492360	1358	486802	855	489015	260400	228615
1879.....	5—16	494424	1255	485040	717	487012	259056	227956
1880.....	5—16	489924	1221	481154	670	483045	255677	227368
1881.....	5—16	484224	1463	474303	502	476268	251661	224607
1882.....	5—16	483817	1352	469751	409	471512	246966	224546
1883.....	5—16	478791	1165	462887	317	464369	243671	220698
1884.....	5—16	471287	1115	465374	428	466917	244532	222385
1885.....	5—21	568137	847	471235	376	472456	249175	223283

NOTE.—Tables A, B, C, D, E, include Separate Schools.

Attendance.

The following Table shews the attendance for the periods therein named :—

YEAR.	Attendance less than 20 days.	20 to 50 days.	51 to 100 days.	101 to 150 days.	151 to 200 days.	201 to whole year.	Average attendance.	Percentage of average attendance to total number attending school.	Pupils between 7-12 and 7-13 not attending school for 110 days during the year.
1876....	46474	91612	128455	108122	94953	20921	212483	43	.....
1877....	43675	88581	127331	109697	100676	20900	217184	44	25974 (7-12)
1878....	42096	87634	121042	106550	107977	23716	224558	46	27415 (7-12)
1879....	44580	84767	123481	103341	107328	23515	219442	45	27409 (7-12)
1880....	44973	85453	121357	101557	105032	24673	220068	45	30195 (7-12)
1881....	45881	82796	119477	103144	104009	20961	215264	45	29143 (7-12)
1882....	43610	81621	117941	102644	107814	17882	214176	45	87444 (7-13)
1883....	41724	78628	115927	103443	108820	15827	215561	46	88432 (7-13)
1884....	40761	76124	114974	103997	112539	18522	221861	46	90959 (7-13)
1885....	43567	77866	119756	103425	115400	12444	225907	48	91269 (7-13)

The preceding Table is worthy of special examination; I would therefore call the attention of Trustees and Inspectors to the details given elsewhere respecting their own districts. (1) It will be noticed that 9 per cent. of the pupils registered attended school less than 20 days. In 1876, the number attending less than 20 days was nearly $9\frac{1}{2}$ per cent. (2) 17 per cent. attended school from 20 to 50 days; 25 per cent. attended from 51 to 100 days, or, to summarize columns one to three, 241,189 pupils attended school less than 100 days; or less than six months in the year. Is it not possible for Trustees and Inspectors to do something whereby a more regular attendance at school may be obtained?

Compulsory Attendance.

By section 210 of the Public Schools Act of 1885, the parent or guardian of every child not less than seven years nor more than thirteen years of age is required to cause such child to attend a public school, or any other school in which elementary instruction is given, for the period of one hundred days in each public school year, unless there be some reasonable excuse for non-attendance. By referring to the column which indicates the attendance of pupils between the ages of seven and thirteen years, it will be seen that the duty imposed by section 217 of the School Act upon Trustees requires their

immediate attention. Under our Free School system the tax-payer who is rated without his consent for school purposes for the public good, has a right to expect that those for whose education he is compelled to provide should be obliged to attend school, at least during the time required by the School Act.

2.—CLASSIFICATION OF PUPILS.

Y EAR.	1st Reader. — Part I. and II.	2nd Reader.	3rd Reader.	4th Reader.	5th Reader.	6th Reader.	Spelling.	Writing.	Arithmetic.	Drawing.	Geography.	Music.	Grammar and Composition.
1876	156425	99977	147263	77861	9011	.....	444281	400774	389933	119479	368733	152148	207239
1877	152002	108678	135824	72871	19857	1628	386393	396006	402248	153036	375951	168942	226977
1878	151474	111360	132144	74729	17891	1417	390506	400750	411216	161368	381401	167890	219940
1879	155861	110093	130013	74368	15622	1055	398159	398340	417457	160672	294405	160906	218253
1880	156527	109065	126758	75564	13649	1482	396353	399867	418524	158789	289378	155346	215743
1881	161463	107458	120725	73754	11442	1426	390170	398598	417708	177102	283060	159579	210616
1882	164810	106229	117352	71740	10357	1024	390920	398404	419557	176434	280517	158694	209181
1883	164035	106482	113980	70104	8919	849	411872	409016	415786	222095	273397	147283	208949
1884	167722	106017	112873	70713	8698	894	410992	416588	422076	247715	280953	150510	220566
1885	181221	98378	108984	74749	9126	.....	422123	432225	437810	310187	305031	165334	242125

While there is a gratifying increase in the number of pupils engaged in the study of the principal subjects on the school curriculum, there is still some negligence in regard to the subject of music. Out of a school population of over half a million it might be reasonably expected that more than 165,000 would be taught how to sing. I have directed the attention of Inspectors to this subject by circular and hope for better results before my next report.

3.—TEACHERS' CERTIFICATES—SALARIES.

Teachers' Certificates.

YEAR.	Public School Teachers.	Males.	Females.	Total number of Certificates.	Provincial 1st Class.	Provincial 2nd Class.	3rd Class.
1876.....	6185	2780	3405	6185	241	1201	3688
1877.....	6468	3020	3448	6468	250	1304	3926
1878.....	6473	3060	3413	6473	210.	1409	3904
1879.....	6596	3153	3443	6596	253	1601	3836
1880.....	6747	3264	3483	6747	239	1875	3706
1881.....	6928	3362	3560	6928	258	1970	3828
1882.....	6857	3062	3795	6857	246	2169	3471
1883.....	6911	2829	4082	6911	211	2167	3426
1884.....	7085	2789	4296	7085	235	2237	3420
1885.....	7218	2744	4474	7218	254	2358	3592

From this Table it will be seen that the total increase of 1033 since 1876 is made up of female teachers, male teachers having declined in number.

Referring to the standing of the teachers employed, it will be noticed that there is an increase of 19 in the number holding Provincial First Class Certificates, and in addition to the 254 teaching in the Public Schools, there are 65 teachers in the High Schools and Collegiate Institutes holding First Class Certificates. This increase, in view of the demand for teachers possessing the highest attainments, is very gratifying. Owing to the superior culture required for teachers of this rank the number eligible for a certificate is necessarily limited. There is, also, a very large increase in the number holding Second Class Certificates, namely, from 1201 in 1876 to 2358 in 1885.

Table of Temporary Certificates.

YEAR.	Temporary Certificates.	Other Certificates, including County Board, etc.
1876	493	562
1877	519	469
1878	480	470
1879	474	432
1880	356	571
1881	321	551
1882	409	562
1883	603	504
1884	623	570
1885	500	514

Teachers' Salaries.

The following Table shows the average salaries for the Province, and for Counties, Cities and Towns, respectively :—

YEAR.	Highest salary paid.	Average salary male teacher, Province.	Average salary female teacher, Province.	Average salary male teacher, Counties.	Average salary female teacher, Counties.	Average salary male teacher, Cities.	Average salary female teacher, Cities.	Average salary male teacher, Towns.	Average salary female teacher, Towns.	No. of teachers who have attended Normal School.
1876.....	\$ 1000	\$ 385	\$ 260	\$ 367	\$ 240	\$ 726	\$ 314	\$ 567	\$ 267	1015
1877.....	1100	398	264	379	251	735	307	583	269	1084
1878.....	1200	407	266	382	247	730	313	577	274	1133
1879.....	1000	409	268	383	249	732	316	616	270	1374
1880.....	1000	410	269	382	241	742	324	564	256	1636
1881.....	1100	410	265	384	240	755	330	562	261	1799
1882.....	1100	415	269	385	248	742	331	576	273	1873
1883.....	1200	422	271	394	252	764	362	606	277	1853
1884.....	1200	426	279	404	264	771	364	612	283	1941
1885.....	1200	427	281	405	267	776	369	612	287	2161

It will be seen, although the increase in salaries is not very large, that Trustees are not unmindful of the services rendered by the teacher. I regret I am not able to furnish any information showing the mode in which these salaries are payable. I fear the habit still prevails of simply paying the teacher the usual grants as they become due, leaving the balance of the salary unpaid until the close of the year.

4.—SCHOOLS AND SCHOOL HOUSES, MAPS, ETC.

Schools and School Houses.

YEAR.	No. of Schools established.	No. of Schools open.	Total No. of school houses.	Brick.	Stone.	Frame.	Log.	Schools using maps.	Total number of maps.	No. of legal teaching days open.
1876	5092	5042	4926	1417	514	2253	742	4603	36874	204
1877	5219	5140	5148	1445	526	2446	731	4666	37493	204
1878	5041	4990	5066	1569	511	2281	705	4670	38995	206
1879	5155	5123	5147	1633	520	2301	693	4744	39987	208
1880	5195	5137	5182	1666	513	2297	706	4752	40104	208
1881	5288	5238	5278	1695	521	2372	690	4740	39719	208
1882	5255	5203	5227	1774	502	2306	645	4738	39372	206
1883	5316	5252	5284	1820	504	2343	617	5119	39812	207
1884	5375	5316	5344	1879	511	2323	631	5163	40022	208
1885	5443	5395	5401	1954	516	2317	614	5217	40116	208

From the above Table it will be seen that out of a total of 5,443 schools established in Ontario, 5,395 were open during last year. It will also be observed that there is a considerable decrease in the number of log school houses and a large increase in frame and brick. In 1850 there were only 99 brick school houses in the Province, now there are 1954. In the same year the number of log school houses was 1466, now happily reduced to 614. It will be gratifying to notice from the column headed "maps" that nearly every school in the Province is furnished with a certain number of wall maps, and that the total number in use exceeds 40,000. As in 1850 the total number of maps used in our public schools was 1814, the figures for last year show what remarkable progress has been made since that time.

5.—RECEIPTS AND EXPENDITURE.

Receipts for School Purposes.

YEAR.	Legislative Grants.	Municipal School Grants and Assessments.	Clergy Reserves Fund. Balances and other sources.	Total receipts.
	\$	\$	\$	\$
1876.....	249956	2346735	776344	3373035
1877.....	251962	2422432	730687	3405061
1878.....	258539	2278040	694996	3231565
1879.....	252566	2307223	654061	3213840
1880.....	263454	2321929	669447	3254830
1881.....	258297	2352556	648385	3259238
1882.....	265738	2447214	757038	3469990
1883.....	265467	2538042	767222	3570731
1884.....	267084	2675621	780433	3723138
1885.....	264419	2680121	868526	3813066

The revenue of School Boards consists of the amount apportioned by the Inspector on the basis of average attendance, interest from investments, and rate levied on the taxable property or income of the ratepayers. Since 1876 there has been an increase of \$14,463 in the revenue from Legislative Grants, and an increase of \$333,386 in the revenue from Municipal Assessments

Expenditure.

YEAR.	Teachers' salaries.	Maps, apparatus, prizes, etc.	Sites and building school houses.	Rent, repairs, fuel and other expenses.	Total expenditure.	Average cost per pupil on total attendance.	On average attendance.
	\$	\$	\$	\$	\$	\$ c.	\$ c.
1876.....	1838321	49083	630266	488786	3006456	6 13	14 15
1877.....	2038099	47539	477393	510458	3073489	6 28	14 15
1878.....	2011208	42507	413393	422239	2889347	5 91	12 86
1879....	2072823	32622	306026	421614	2833085	5 82	12 91
1880.....	2113180	25222	249390	434261	2822053	5 85	12 82
1881.....	2106019	14022	280460	443770	2844271	5 92	13 21
1882.....	2144449	15583	341918	525025	3028975	6 42	14 13
1883.....	2210187	20275	312342	565626	3108430	6 69	14 42
1884.....	2296027	17732	341198	625905	3280862	7 02	14 79
1885.....	2327050	20230	373405	592015	3312700	7 01	14 66

This Table shows an increased expenditure of \$306,244 for 1885, as compared with 1876, or an increase of 10 per cent. The cost per pupil is now \$7.01 on total attendance, and \$14.66 on average attendance.

6.—ROMAN CATHOLIC SEPARATE SCHOOLS.

Schools—Expenditure—Teachers.

YEAR.	No. of Schools open.	Total Receipts.	Total Expenditure.	No. of Teachers.
		\$	\$	
1876	167	106483	101493	302
1877	186	120266	114806	334
1878	176	127549	120559	333
1879	191	129092	122831	346
1880	196	136873	128463	344
1881	195	137074	123724	374
1882	193	166739	154340	390
1883	194	166289	153611	397
1884	207	190454	176477	427
1885	218	218096	204531	453

Number of Pupils—Studies.

YEAR.	No. of Pupils.	No. in Reading.	No. in Spelling.	No. in Writing.	No. in Arithmetic.	No. in Geography.	No. in Grammar.	No. of Maps.	No. of schools using maps.
1876.....	25294	23823	22652	19172	19550	14890	10909	1133	154
1877.....	24952	23716	17920	17932	17961	13154	11174	1267	162
1878.....	25280	25280	18559	19381	20111	14668	11806	1274	165
1879.....	24779	24777	18039	19069	19965	13668	11469	1417	168
1880.....	25311	25311	19178	21914	20716	14875	11968	1604	168
1881.....	24819	24767	19763	19726	20473	14636	11909	1708	166
1882.....	26148	26148	21119	21052	21524	13900	11695	1616	171
1883.....	26177	26177	21385	22016	22111	14074	12305	1646	177
1884.....	27463	27463	23125	23139	23705	15108	13637	1640	193
1885.....	27590	27590	23357	23377	24823	16122	14518	1634	201

From these Tables it will be seen that while the number of Separate Schools has increased 51 in ten years, the expenditure increased \$111,613, and the number of teachers 151 during the same period. The number of pupils in the various subjects of the school programme has also proportionately increased.

II.—HIGH SCHOOLS.

(Including Collegiate Institutes.)

1.—RECEIPTS, EXPENDITURE, ATTENDANCE, ETC.

YEAR.	No. of schools open.	Total receipts.	Paid for Teachers' salaries.	Total expenditure.	No. of pupils.	Average attendance.	Percentage of average attendance to total attendance.	Cost per pupil on total attendance.	Cost per pupil on average attendance.
		\$	\$	\$				\$ c.	\$ c.
1876.....	104	321132	195906	304948	8541	4719	55	35 70	64 60
1877.....	104	357521	211607	343710	9229	5201	56	37 24	66 08
1878.....	104	420188	223010	396010	10574	5998	56	37 46	66 03
1879.....	104	417461	241097	400788	12136	6992	57	33 02	57 32
1880.....	104	432309	247894	413930	12910	7256	56	32 06	57 05
1881.....	104	371250	257218	345850	13136	7270	55	26 00	47 57
1882.....	104	373150	253864	343720	12348	6580	53	27 56	52 24
1883.....	104	378888	266317	348946	11843	6454	55	29 47	54 07
1884.....	106	407978	282776	385426	12737	7302	57	30 26	52 78
1885.....	107	458941	294078	429762	14250	8207	58	30 16	52 36

The number of Collegiate Institutes in operation 18, employing on an average 7 masters each; the number of two-master schools, 49; three-master schools and over, 58. The average cost per pupil at a Collegiate Institute, \$33.38; at a High School, \$28.57. Fees varying from \$2 to \$27 per annum are charged in 43 High Schools; the remaining 64 do not charge fees.

2.—CLASSIFICATION.

The following Table shows the classification of the High Schools and the number of pupils in several of the most important subjects :—

YEAR.	English Grammar.	Composition.	Reading.	History.	Geography.	Arithmetic and Mensuration.	Book-keeping and Commercial Transactions.	Algebra.	Latin.	Greek.	French.	German.	Music.	Drawing.
1876.....	8457	8091	8249	8125	8318	8452	3725	7609	3789	905	3039	362	....	2747
1877.....	8819	8772	8762	9106	9158	9227	3621	8678	4955	871	3091	442	....	2755
1878.....	10486	9844	10184	9855	10074	10450	4011	10212	4729	883	3588	516	....	2881
1879.....	12015	11691	11281	11873	11935	12105	4500	11761	5391	1097	4687	729	....	2693
1880.....	12765	12288	12128	12654	12634	12825	4542	12667	5559	1100	5464	859	....	2397
1881.....	13066	13050	12290	12937	12802	13097	5005	13082	5389	967	5938	877	....	1596
1882.....	12275	12189	11425	12220	12106	12261	5642	11742	4591	815	5363	962	....	3441
1883.....	11815	11707	9939	11551	11518	11767	4849	10296	4439	903	5318	961	1360	3538
1884.....	12577	12525	11792	12393	12448	12638	7407	11490	4454	927	5119	1089	3428	8126
1885.....	13942	14022	13253	13912	13885	14017	11145	13633	4937	903	5523	1111	3547	12150

3.—MISCELLANEOUS.

The highest salary paid a Head Master, \$2350; the lowest, \$750. The average salary of a Head Master, \$1104. Sixty-one Head Masters were graduates of Toronto University; 20 of Victoria; 11 of Queen's; 7 of Trinity; 2 of Albert; and 4 of British Universities. The total number of teachers employed was 365.

Entrance Examination to High Schools.

The following Table shows the number of candidates who passed the Entrance Examination and the occupation chosen by High School pupils on completing their High School course :—

YEAR.	Candidates examined.	Candidates passed.	Matriculated.	Mercantile.	Agriculture.	Learned Professions.
1876.....			126	495	300	427
1877.....	6248	3270	145	555	328	564
1878.....	7383	3826	183	445	417	633
1879.....	5848	4822	248	565	535	693
1880.....	4894	2654	209	731	555	625
1881.....	6556	3427	280	859	598	576
1882.....	9815	4751	272	881	646	751
1883.....	9607	4371	277	768	583	868
1884.....	10662	7040	266	730	571	927
1885.....	13660	6768	290	856	636	639

III.—MODEL SCHOOLS.

YEAR.	No. of Schools.	No. of Teachers in training.	No. that passed final examination.	Government Grant.
1877	50	1237	1146	\$ 2000
1878	50	1391	1372	8200
1879	51	1295	1259	200
1880	49	1413	1317	100000 (1879-80)
1881	50	668	615	4900
1882	46	882	837	9750
1883	48	820	791	7500
1884	51	1117	1017	8100
1885	52	1305	1203	8100
1886	53	1463	1376	8250

IV.—TEACHERS' INSTITUTES.

YEAR.	RECEIPTS.							EXPENDITURE.	
	No. of Teachers' Institutes.	No. of Members.	Total No. of Teachers in Province.	Amount received from Government Grant.	Amount received from Municipal Grant.	Amount received from Members' Fees.	Total amount received.	Amount paid for Libraries.	Total amount paid.
				\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1877.....	42	1881	6468	1412 50	100 00	299 75	2769 45	.....	1127 68
1878.....	54	3511	6473	3247 38	530 00	689 32	5961 63	1069 76	3764 63
1879.....	60	4185	6586	3516 55	350 00	756 55	7632 24	1687 68	4772 30
1880.....	59	4214	6747	3275 00	225 00	790 20	8028 97	1460 29	4965 85
1881.....	61	4033	6922	2950 00	200 00	1027 04	8570 64	438 62	4377 44
1882.....	62	4396	6857	2900 00	300 00	1068 84	9394 28	453 02	5355 33
1883.....	62	4821	6911	4025 00	435 00	792 83	10372 91	1274 32	5870 79
1884.....	64	5189	7085	2027 00	510 00	676 05	9423 47	1500 09	4875 43
1885.....	64	5666	7218	1800 00	900 00	885 31	9253 65	1636 21	4587 87

V.—TRAINING INSTITUTES,

FOR ASSISTANT MASTERS IN HIGH SCHOOLS AND FIRST CLASS TEACHERS.

1885.

NAME OF INSTITUTE.	NAME OF PRINCIPAL.	Number in attendance at Institute.		Number who wrote at examination.		Number who passed.				Number of Lessons taught.
		Male.	Female.	Male.	Female.	Assistant Masters.		First-Class Professional and Assistant Masters.		
						Male.	Male.	Male.	Female.	
Hamilton	P. S. Campbell, M.A...	9	1	25	1	13	1	10	.....	268
Kingston	A. P. Knight, B.A.....	11	.....	11	.....	9	.....	.....	.....	178
	Total	20	1	36	1	22	1	10	.....	446

1886.

NAME OF INSTITUTE.	NAME OF PRINCIPAL.	Number in attendance at Institute.		Number who wrote at examination.		Number who passed.				Number of Lessons taught.
						Assistant Masters.		First-Class Professional and Assistant Masters.		
		Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	
Guelph	William Tytler, B.A....	7	.....	15	.....	7	.....	2	.....	233
Hamilton	P. S. Campbell, M.A. ...	13	.....	40	2	14	.....	11	1	336
Kingston	A. P. Knight, M.A.	10	1	21	9	6	1	7	8	220
Strathroy	J. E. Wetherell, B.A....	8	.....	18	1	5	1	2	.....	178
	Total	38	1	94	12	32	2	22	9	967

VI.—NORMAL AND MODEL SCHOOLS.

YEAR.	Number of Normal School Teachers.	Number of Normal School Students.	Number of Model School Teachers.	Number of Model School Pupils.	Receipts from Fees of Model School Pupils.	Expenditure, Normal and Model Schools.
					\$ c.	\$ c.
1877.....	13	237	8	399	7909 22	38863 58
1878.....	14	226	8	382	7752 00	34032 92
1879.....	15	429	8	391	7798 00	33719 58
1880.....	13	483	15	607	9122 00	36694 07
1881.....	15	418	15	698	11523 00	41808 43
1882.....	16	260	15	799	13783 50	44888 02
1883.....	15	338	16	760	13232 00	45540 40
1884.....	15	351	16	742	12106 75	40761 02
1885.....	12	405	17	658	11852 50	38257 11
1886.....	11	439	18	660	11625 50	37477 89

VII.—ART SCHOOLS.

There are now in operation five Art Schools. The one at Ottawa is attended by 149 pupils; at Kingston by 102 pupils; at Toronto by 157 pupils; at London by 155 pupils; and at Hamilton by 243 pupils. Art Schools have since been incorporated in Stratford and Brockville.

Ottawa, Toronto, Kingston and London, sent over more than five hundred examples of Art work to the Colonial and Indian Exhibition, including Freehand Drawings, Geometry, Perspective Drawing from Models, Original Industrial Designs, Machine Drawings, Mechanical Drawings, Architectural Drawings, Shading from the "Flat," Shading from the "Round," Shading "Still Life," Outline from the "Round," Pen and Ink Drawings, Life Studies, Oil Paintings, Water Color Paintings, Painting on China, Modelling in Clay and Plaster Casts, Sculpture in Marble, Repoussé Work, Chasing in Brass, Electro-Metallizing, Wood-carving, etc.

Some of these specimens were presented to Her Majesty the Queen, and a letter has just been received from Sir Henry Ponsonby, the Queen's Private Secretary, in which he says "the Queen was very much pleased with them, and commanded me to thank you for sending her those well executed specimens of the work of the students."

In addition to the regular Art Schools, Drawing-classes, in affiliation with the Art Schools for examination purposes, were established in seventy-four Mechanics' Institutes, etc. Simultaneous examinations were held throughout the Province; 10,349 examination papers, Grade B, and 914 examination papers, Grade A, were sent to 78 Art Schools and branch Art Schools from this department on the 1st March, 1886. These papers were finally examined at this department by a committee from different parts of the Province appointed for that purpose.

Drawing Classes were also conducted for teachers during the summer holidays at Aurora, Barrie, Cannington, Collingwood, Picton, Parkdale, Sarnia, Stratford and Thornbury. The number of lessons given in each place varied from 30 to 75.

VIII.—MECHANICS' INSTITUTES.

There are now in operation 131 Mechanics' Institutes and Free Libraries, with 29,492 members, averaging 225 members to each Institute, with property valued at \$5,369,098.

The total expenditure for the past year was \$93,136; the sum of \$23,875 was expended for books, and 679,096 volumes were issued to the public, shewing that there were at least that number of applications from persons who availed themselves of this source of information.

Seventy-nine Institutes expended \$7,927 on reading-rooms, and provided for their members 1,147 periodicals and 1,214 newspapers. Twenty-four Institutes conducted evening classes in English, Commercial and Science courses, and 57 Institutes conducted evening classes in Drawing, including the elementary course, Industrial Designs, Mechanical Drawing, Machine Drawing, Architectural Drawing, Flower Drawing, Shading from the "Flat," Shading from the "Round," Wood-carving, etc. One thousand and fifty-two students from Mechanics' Institutes were examined for certificates in Drawing in March, 1886. The sum of \$6,222 was expended on evening classes, and \$2,293 on lectures.

Forty-eight Mechanics' Institutes sent specimens of Drawing to the Colonial and Indian Exhibition. The British press gave several favorable notices of this work. The *Canadian Gazette*, in referring to the value of practical education to adult artisans, says "the work from several Institutes is now on display in the Court: from it may be gathered that a practical knowledge of Drawing is imparted. The industrial designs prepared at these Mechanics' Institutes have elicited general commendation." The *Globe* says "the work from the Mechanics' Institutes has attracted a great deal of attention from manufacturers and others, in connection with the growing recognition of training mechanics and artisans in industrial drawing."

IX.—DEPARTMENTAL EXAMINATIONS.

EXAMINATION PAPERS PRINTED, 1886.

Entrance Examinations	221,500
County Model Schools	14,000
Training Institutes	4,000
III. Class	156,000
II. Class, Professional	31,600
II. Class, Non Professional	114,500
I. Class	17,500
Provincial Model Schools	14,100
Algoma and Parry Sound Papers	4,200
Total	567,400

DEPARTMENTAL EXAMINATIONS, 1879-1886, INCLUSIVE, FOR TEACHERS' NON-
PROFESSIONAL CERTIFICATES.

YEAR OF EXAMINATION.	Candidates Examined.	Passed for II. Class.	Passed for III. Class.	Appeals.	Sustained.
1879.....	2539	750	Conducted by County Boards. 424		
1880.....	3185	737			
1881.....	3592	674			
1882.....	3090	1181			
1883.....	3900	377	1205		
1884.....	5128	1071	860	506	144
1885.....	4541	743	1150	736	194
1886.....	5055	764	1312	339	109

X.—ARBOR DAY.

By a circular issued on the 16th day of April, 1885, I suggested to the trustees in the rural districts to set apart the second Friday in May for the purpose of planting trees, and beautifying and improving the school grounds. I am glad to say that the response to my suggestion was very cordial and all but unanimous. The Inspectors report that in addition to the planting of trees, many school yards were sodded, fences repaired, walks laid, and flower beds arranged, thus adding to the beauty and attractiveness of the school premises. Provision is now made in the new regulations for an annual Arbor Day in the Province. In a very few years I trust that the grounds surrounding every school house will be planted with suitable shade trees and otherwise made attractive to the pupils.

The number of trees, etc., planted on Arbor Day, 1885, was (corrected) 38,940; flower beds, 253.

XI.—INDIAN AND COLONIAL EXHIBITION.

The exhibition of the Education Department at the Indian and Colonial Exhibition at London during the year, was generally regarded as very satisfactory. The design of the exhibit was to show the standing of our school system by means of such appliances as are generally in use, and to represent the actual work of the pupils, so far as they were capable of use for this purpose. The exhibit embraced every department of the system and was viewed with great interest by visitors from all parts of the world. As a full report will be submitted to you by the Special Commissioner, S. P. May, M.D., I need not now enter more fully into details. It is due, however, to Sir Charles Tupper, Commissioner of the Dominion, and also to Dr. May, to acknowledge the earnestness and fidelity with which they devoted themselves to the interests of the Province, and the valuable services rendered by them in placing before the millions who attended the Exhibition the educational advantages of Ontario.

XII.—CONCLUSION.

In the perusal of this Report, I trust you will find many gratifying evidences of progress. Nowhere are the benefits of a liberal education more fully appreciated than in this Province, and you may rest assured that no effort will be spared to give every citizen the advantages of at least a good elementary education.

I have the honor to be,

Your Honor's obedient servant,

EDUCATION DEPARTMENT,

Toronto, December 31st, 1886.

GEO. W. ROSS,

Minister of Education.

TABLES

REFERRED TO IN THE FOREGOING

STATISTICAL REPORT.

TABLE A.—The Public

COUNTIES. (Including Incorporated Villages but not Cities or towns.)	School population between 5 and 21 years of age.	PUPILS ATTENDING					
		Pupils under 5 years of age.	Pupils between 5 and 21 years of age.	Pupils over 21 years of age.	Total number of Pupils of all ages attending school.	Boys.	Girls.
1 Brant	5490	1	4302	6	4309	2340	1969
2 Bruce	19270	20	15892	19	15931	8564	7367
3 Carleton	10436	28	9335	9	9372	5000	4372
4 Dufferin	6385	14	5730	5	5749	3062	2687
5 Dundas	6197	21	5191	2	5214	2711	2503
6 Durham	7646	18	6594	4	6616	3533	3083
7 Elgin	8232	19	8024	3	8052	4222	3830
8 Essex	11536	22	9714	6	9742	5161	4581
9 Frontenac	7364	21	6625	4	6650	3450	3200
10 Glengarry	5160	6	4896	4	4906	2638	2268
11 Grenville	6521	11	5704	3	5718	3118	2600
12 Grey	21522	49	17079	28	17156	9318	7838
13 Haldimand	7093	13	5971	4	5988	3224	2764
14 Haliburton	1942	21	1482	3	1506	779	727
15 Halton	6069	8	4977	5	4990	2700	2290
16 Hastings	12001	22	10172	9	10203	5401	4802
17 Huron	19103	32	15962	10	16004	8337	7467
18 Kent	10781	37	10319	9	10365	5598	4767
19 Lambton	13612	24	11561	18	11603	6055	5548
20 Lanark	7785	.....	6352	1	6353	3204	8149
21 Leeds	7428	9	6789	10	6808	3600	3208
22 Lennox and Addington	6249	10	5601	1	5612	2969	2643
23 Lincoln	5590	12	4687	3	4702	2558	2144
24 Middlesex	16889	12	14971	9	14992	8080	6912
25 Norfolk	8316	19	7843	6	7868	4191	3677
26 Northumberland	9396	8	8175	.....	8183	4500	3683
27 Ontario	12291	10	10402	5	10417	5598	4819
28 Oxford	10597	4	9047	14	9065	4967	4098
29 Peel	6654	15	5610	2	5627	2970	2657
30 Perth	10716	24	8988	1	9013	4839	4174
31 Peterborough	6830	20	5673	4	5697	3018	2679
32 Prescott and Russell	12104	49	9626	3	9678	4878	4900
33 Prince Edward	4217	1	4092	5	4098	2213	1885
34 Renfrew	11726	23	8725	12	8760	4552	4208
35 Simcoe	17880	43	16237	26	16306	8665	7641
36 Stormont	5278	19	4675	2	4696	2500	2196
37 Victoria	11066	20	9530	11	9561	5019	4542
38 Waterloo	9921	6	7955	3	7964	4382	3582
39 Welland	6562	18	5561	12	5591	2986	2605
40 Wellington	15331	28	12385	14	12427	6632	5795
41 Wentworth	8210	9	6258	8	6275	3446	2829
42 York	16961	22	13485	19	13526	7384	6142
43 Districts	10221	28	8014	16	8058	4079	3979
Total	424578	796	360211	344	361351	192641	168710
CITIES.							
1 Belleville	3219	.....	2205	.....	2205	1125	1080
2 Brantford	4231	1	2448	.....	2449	1254	1195
3 Guelph	3248	1	2252	.....	2253	1168	1085
4 Hamilton	12828	10	8073	.....	8083	4017	4066
5 Kingston	4942	.....	3368	.....	3368	1719	1649
6 London	7666	2	5908	2	5912	3060	2852
7 Ottawa	7300	15	6066	.....	6081	3154	2927
8 St. Catharines	3007	.....	2071	.....	2071	1127	944
9 St. Thomas	2872	.....	2435	.....	2435	1198	1237
10 Stratford	3159	1	1865	.....	1866	970	896
11 Toronto	33101	10	21359	8	21377	10949	10428
Total	85573	40	58050	10	58100	29741	28359

Schools of Ontario.

THE PUBLIC SCHOOLS.

NUMBER OF PUPILS ATTENDING SCHOOL.						Number of children between 7 and 13 years of age not attending any school for 100 days during the year.	Number of children between 7 and 13 years of age not attending any school during the year.	Average attendance of pupils.	Percentage of average attendance to total number attending school.
Less than 20 days during the year.	20 to 50 days.	51 to 100 days.	101 to 150 days.	151 to 200 days.	201 days to the whole year.				
1 331	668	1129	1014	985	182	740	10	2058	48
2 1446	2645	4157	3637	3579	467	4099	163	7104	45
3 1021	1848	2432	1973	1832	266	2758	133	3958	42
4 863	1207	1620	1129	803	127	1842	46	2096	37
5 610	908	1288	1141	1146	121	1419	98	2338	45
6 666	1240	1713	1617	1267	213	1494	136	2938	45
7 747	1353	2032	1860	1778	282	1705	97	3724	46
8 1129	1673	2542	2184	1954	260	2306	226	4263	44
9 1092	1476	1824	1269	887	102	2095	229	2411	36
10 556	1038	1446	1014	753	99	1561	64	2219	45
11 629	1164	1540	1233	1016	136	1110	61	2360	41
12 2157	3850	4855	3488	2478	328	4759	429	6568	38
13 545	1012	1493	1362	1336	240	1376	150	2871	48
14 285	430	424	256	89	22	537	112	454	30
15 396	796	1369	1129	1150	150	1072	33	2301	46
16 1258	1921	2598	2074	2096	256	2845	134	4375	43
17 1377	2468	4317	3726	3585	531	3009	101	7443	47
18 1178	1953	2827	2251	1936	220	2159	253	4263	41
19 972	1831	2770	2730	2858	442	1298	86	5689	49
20 538	1036	1597	1476	1366	340	1615	74	3146	50
21 788	1269	1753	1599	1253	146	1928	28	2882	42
22 679	1134	1551	1208	941	99	1686	82	2260	40
23 398	823	1228	1099	1008	146	1119	16	2143	46
24 1222	2153	3570	3584	4014	449	2367	83	7284	49
25 881	1502	2114	1713	1467	191	1562	40	3354	43
26 780	1439	2114	1786	1825	239	2058	100	3745	46
27 999	1831	2867	2237	2103	380	2092	88	4987	48
28 659	1438	2307	2088	2206	367	1756	85	4399	49
29 511	1017	1556	1326	1128	89	1428	46	2290	41
30 631	1281	2399	2128	2262	312	1842	26	4397	49
31 666	1057	1573	1215	1035	151	1702	66	2452	43
32 1289	1967	2589	1891	1681	261	3305	390	3956	41
33 384	746	1059	890	865	154	845	28	1834	46
34 1069	1747	2508	1844	1379	213	2370	289	3366	39
35 1766	3204	4487	3377	2864	608	3135	243	6869	42
36 635	985	1169	924	857	126	753	4	1880	40
37 1235	2010	2745	1920	1510	141	2471	141	3811	40
38 425	976	1916	1947	2325	375	1374	37	4229	53
39 605	977	1546	1221	1047	195	908	40	2302	42
40 1072	2083	3358	2871	2639	384	3196	106	5770	46
41 564	1062	1639	1447	1358	205	1396	24	2884	46
42 1371	2400	3543	3141	2620	451	2695	380	5973	44
43 1091	1735	2186	1627	1099	320	1901	215	2901	36
37516	65353	95750	79546	72400	10786	83688	5192	158547	44
1 109	248	472	504	801	71	199	.....	1267	58
2 163	348	508	550	880	.....	218	100	1562	61
3 78	216	452	566	928	13	.....	.....	1341	60
4 302	775	1614	1591	3395	406	.....	.....	5171	64
5 164	364	629	896	1315	.....	.....	.....	2050	61
6 491	865	1777	1116	1639	24	.....	.....	3203	55
7 433	876	1536	1339	1526	381	.....	.....	3721	61
8 109	236	512	519	686	9	213	.....	1302	63
9 124	294	590	500	919	8	.....	.....	1427	59
10 123	171	368	443	743	18	.....	.....	1167	62
11 833	2121	4225	3804	10385	9	.....	.....	13925	65
2929	6514	12673	11828	23217	939	630	100	36136	62

I.—TABLE A.—The Public

TOWNS.	School population between 5 and 21 years of age.	PUPILS ATTENDING					
		Pupils under 5 years of age.	Pupils between 5 and 21 years of age.	Pupils over 21 years of age.	Total number of Pupils of all ages attending school.	Boys.	Girls.
1 Almonte	994		622		622	331	291
2 Amherstburg	1131		680		680	366	314
3 Barrie	1814		1149	1	1150	585	565
4 Berlin	1775	1	1015		1016	531	485
5 Blenheim	470		401		401	188	213
6 Bothwell	329		240		240	116	124
7 Bowmanville	892		754		754	389	365
8 Brampton	726		760		760	401	359
9 Brockville	2381		1694		1694	829	865
10 Chatham	2872		2042	1	2043	991	1052
11 Clinton	1300		640		640	309	331
12 Cobourg	1472		984		984	485	499
13 Collingwood	1315		1143		1143	601	542
14 Cornwall	1866		1290	1	1291	663	628
15 Dresden	577		547		547	269	278
16 Dundas	1157		900	13	913	464	449
17 Durham	331		300		300	149	151
18 Galt	2161		1384		1384	698	686
19 Goderich	1217		1013		1013	508	505
20 Harriston	616		480		480	238	242
21 Ingersoll	1200		961		961	504	457
22 Kincardine	1038		783		783	386	397
23 Lindsay	1669		1439		1439	653	786
24 Listowel	1153		624		624	327	297
25 Meaford	600		526		526	268	258
26 Milton	460		347		347	173	174
27 Mitchell	1192		567		567	259	308
28 Mount Forest	806		608		608	315	293
29 Napanee	893		853		853	434	419
30 Newmarket	550	5	467		472	266	206
31 Niagara	504		257		257	129	128
32 Niagara Falls	755		577		577	279	298
33 Oakville	516		412		412	209	203
34 Orangeville	925		712		712	363	349
35 Orillia	1446		944	1	945	486	459
36 Oshawa	1634		975		975	490	485
37 Owen Sound	1517		1136		1136	586	550
38 Palmerston	475		432		432	212	220
39 Paris	1085		769		769	378	391
40 Parkdale	978		873		873	428	445
41 Pembroke	844	4	826	2	832	437	395
42 Penetanguishene	472		236		236	111	125
43 Perth	1264		659	2	661	331	330
44 Peterboro'	2608		1944		1944	969	975
45 Petrolea	1199		986		986	505	481
46 Picton	618		591		591	294	297
47 Port Arthur	1311		692		692	389	303
48 Port Hope	2350		1076		1076	520	556
49 Prescott	603		584		584	311	273
50 Rat Portage	230		184		184	87	97
51 Ridgetown	657		523		523	277	246
52 Sandwich	341		253		253	128	125
53 Sarnia	1752		1271		1271	656	615
54 Seaforth	824		664		664	305	359
55 Simcoe	820		559		559	310	249
56 Smith's Falls	616		550		550	285	265
57 St. Mary's	964		923		923	465	458
58 Strathroy	1233		800	1	801	414	387

Schools of Ontario.

THE PUBLIC SCHOOLS.

NUMBER OF PUPILS ATTENDING SCHOOL.						Number of children between 7 and 13 years of age not attending any school for 100 days during the year.	Number of children between 7 and 13 years of age not attending any school during the year.	Average attendance of pupils.	Percentage of average attendance to total number attending school.
Less than 20 days during the year.	20 to 50 days.	51 to 100 days.	101 to 150 days.	151 to 200 days.	201 days to the whole year.				
1 40	86	211	126	132	27			396	61
2 27	101	154	148	249	1	42		368	54
3 75	128	236	222	476	13			657	57
4 51	108	214	277	359	7	138		545	54
5 30	41	112	103	103	12			201	50
6 14	10	57	57	98	4	40	12	140	58
7 21	54	131	163	385				500	66
8 53	56	112	163	376				496	66
9 41	160	300	366	780	47			1083	64
10 139	235	457	483	716	13	264		1189	58
11 30	64	115	139	286	6	80		392	61
12 52	88	235	245	335	29	68		604	61
13 97	153	256	247	390		388		611	54
14 102	189	320	269	389	22			690	54
15 52	61	128	136	170		166		260	48
16 81	159	258	259	156		161		532	58
17 21	41	79	71	88		11		166	55
18 73	150	237	289	583	52	236		861	62
19 62	97	166	226	450	12	38		620	61
20 40	66	103	104	167		120		257	54
21 44	108	205	210	389	5	176		565	59
22 47	105	151	196	284		182		416	53
23 65	123	300	380	568	3	137		859	60
24 23	64	116	139	231	51	101	40	369	59
25 12	52	128	158	173	3	88		348	66
26 18	32	60	78	156	3	47		219	63
27 16	64	111	124	251	1			354	63
28 33	64	130	137	241	3	65		356	59
29 50	96	194	247	266		181		440	52
30 39	70	97	91	172	3	82		264	56
31 9	24	73	56	92	3			150	58
32 39	60	110	113	236	19			337	58
33 21	34	89	105	158	5	48	4	253	62
34 53	84	170	172	233		175		385	54
35 49	89	168	208	388	43	135		555	59
36 28	79	187	170	481	30	140		644	66
37 90	130	252	256	398	10	263		655	58
38 24	104	59	87	124	34	61	43	222	51
39 27	96	155	137	319	35			465	60
40 67	123	210	155	318				482	55
41 26	45	192	259	273	37			560	68
42 39	40	48	45	62	2	75	8	106	45
43 32	64	135	112	310	8	60		406	62
44 107	242	503	499	579	14			1156	60
45 52	101	187	217	400	29	185	13	644	66
46 32	58	118	146	228	9	92	17	387	66
47 76	114	188	164	145	5	200		321	47
48 42	90	194	257	493		158		690	64
49 24	64	120	135	236	5	56	29	365	63
50 45	53	24	35	21	6			90	49
51 34	67	121	117	184		75		286	55
52 21	36	70	69	57		83		133	53
53 81	152	267	299	462	10	192		703	55
54 21	57	100	124	356	6	86		403	61
55 24	72	104	117	235	7	54		336	60
56 34	43	81	134	214	44	87		344	62
57 55	97	277	266	228		368		461	50
58 33	88	156	165	354	5	155		478	60

I.—TABLE A.—The Public

TOWNS—Continued.	School population between 5 and 21 years of age.	PUPILS ATTENDING					
		Pupils under 5 years of age.	Pupils between 5 and 21 years of age.	Pupils over 21 years of age.	Total number of pupils of all ages attending school.	Boys.	Girls.
59 Thorold	862	.....	625	.....	625	300	325
60 Tilsonburg	519	.....	451	.....	451	228	223
61 Trenton	1013	.....	946	.....	946	492	454
62 Walkerton	1100	.....	619	.....	619	323	296
63 Waterloo	839	.....	529	.....	529	276	253
64 Welland	541	.....	342	.....	342	174	168
65 Whitby	658	1	676	.....	677	372	305
66 Windsor	1792	.....	1316	.....	1316	627	689
67 Wingham	751	.....	509	.....	509	273	236
68 Woodstock	1423	.....	1340	.....	1340	678	662
Totals	72996	11	52974	22	53007	26793	26214
TOTALS.							
1 Counties, etc.	424578	796	360211	344	361351	192641	168710
2 Cities	85573	40	58050	10	58100	29741	28359
3 Towns	72996	11	52974	22	53007	26793	26214
4 Grand total, 1885	583147	847	471235	376	472458	249175	223283
5 " " 1884 .....	.....	1115	465374	428	466917	244532	222385
6 Increase .....	.....	.....	5861	.....	5541	4643	898
7 Decrease .....	.....	268	.....	52	.....	.....	.....
8 Percentage of grand total as compared with total attendance .....	.....	$\frac{1.9}{100}$	$\frac{99.74}{100}$	$\frac{1.8}{100}$	.....	53	47

NOTE.—In calculating the average attendance, the

Tables A, B, C, D, E, include the statistics of Roman Catholic

Schools of Ontario.

THE PUBLIC SCHOOLS.

NUMBER OF PUPILS ATTENDING SCHOOL.						Number of children between 7 and 13 years of age not attending any school for 100 days during the year.	Number of children between 7 and 13 years of age not attending any school during the year.	Average attendance of pupils.	Percentage of average attendance to total number attending school.
Less than 20 days during the year.	20 to 50 days.	51 to 100 days.	101 to 150 days.	151 to 200 days.	201 days to the whole year.				
59 46	83	138	137	199	22	111		404	65
60 43	63	96	87	159	3	115		265	59
61 93	171	231	199	252		202		488	52
62 44	76	138	136	225				345	56
63 25	34	89	135	239	7	93		351	66
64 38	60	109	73	61	1	143	45	181	53
65 31	51	186	158	251		136		400	59
66 87	159	257	235	578		410	175	874	66
67 32	46	110	123	198				297	59
68 50	125	248	296	618	3	182		844	63
3122	5999	11333	12051	19783	719	6951	386	31224	59
1 37516	65353	95750	79546	72400	10786	83688	5192	158547	44
2 2929	6514	12673	11828	23217	939	630	100	36136	62
3 3122	5999	11333	12051	19783	719	6951	386	31224	59
4 43567	77866	119756	103425	115400	12444	91269	5678	225907	48
5 40761	76124	114974	103997	112539	18522	90959	6230	221861	48
6 2806	1742	4782		2861		310		4046	
7			572		6078		552		
9	17	25	22	24	3				

divisor used is the legal number of teaching days.

Separate Schools which are, however, given separately in Table F.

II.—TABLE B.—The

NUMBER OF PUPILS IN THE

COUNTIES (Including Incorporated Villages but not Cities or Towns.)	READING.						Spelling.	Writing.	Arithmetic.	Drawing.	Geography.
	1st Reader, Part I.	1st Reader, Part II.	2nd Reader.	3rd Reader.	4th Reader.	5th Reader.					
1 Brant.....	736	550	853	1185	766	219	4309	4309	4309	2694	4309
2 Bruce.....	3863	2481	3351	3631	2331	274	14985	14645	15147	11362	9345
3 Carleton.....	1882	1256	1943	2432	1770	89	7449	7786	7778	2928	4204
4 Dufferin.....	1321	885	1233	1418	846	46	4784	5299	5125	3694	3253
5 Dundas.....	1138	827	1355	1072	722	100	4366	4423	4884	2360	3099
6 Durham.....	1290	945	1421	1676	1019	265	6264	6241	6179	2600	4140
7 Elgin.....	1604	1023	1795	1752	1698	180	7478	7639	7636	7160	5790
8 Essex.....	2874	1998	1961	1647	1079	183	8936	8300	9294	5720	5974
9 Frontenac.....	1578	977	1555	1547	953	40	5395	5569	5718	3833	4008
10 Glengarry.....	1230	721	1132	1035	746	42	4115	4277	4338	2355	2845
11 Grenville.....	1045	675	1090	1476	1382	50	4810	4832	4961	2142	2925
12 Grey.....	3771	2518	3737	4187	2810	133	14509	15253	15233	10637	9406
13 Haldimand.....	1206	840	1405	1251	1057	229	5606	5714	5574	3185	3855
14 Haliburton.....	399	253	369	330	155	...	1192	1306	1182	174	631
15 Halton.....	1239	905	982	1044	781	39	4847	4951	4966	4473	2663
16 Hastings.....	2946	1730	2090	2119	1119	199	8618	9473	9540	6996	6069
17 Huron.....	3208	2152	2901	4237	3078	428	15007	15290	15276	11693	10761
18 Kent.....	2317	1557	2237	2331	1736	187	8970	9357	9422	6574	6081
19 Lambton.....	2813	1866	2373	2378	1915	258	10630	10980	11266	8341	7565
20 Lanark.....	1230	985	1553	1612	859	114	5742	5864	5911	3380	3600
21 Leeds.....	1309	870	1370	1749	1481	29	5225	5571	5534	2308	4062
22 Lennox and Addington.....	1121	681	1091	1694	974	51	5006	5437	5318	2594	3213
23 Lincoln.....	1016	623	916	1082	1015	50	4140	4176	4293	2867	2940
24 Middlesex.....	3116	2351	3303	2960	2750	512	13362	14101	14283	13407	8661
25 Norfolk.....	1533	1156	1596	1859	1593	131	6840	6969	7117	4447	4664
26 Northumberland.....	1613	1169	1814	2021	1453	113	7193	7527	7495	4113	5485
27 Ontario.....	2202	1486	1841	2455	2282	151	8863	9552	9538	7157	5806
28 Oxford.....	1844	1247	1724	2350	1657	243	8337	8202	8581	5515	5477
29 Peel.....	1352	1076	1010	1277	851	61	4859	5349	5311	4247	3273
30 Perth.....	1732	1241	1712	2807	926	595	8091	8456	8368	4449	5115
31 Peterborough.....	1266	929	1332	1388	745	37	4505	4964	5115	2140	3889
32 Prescott and Russell.....	3440	1527	1671	1665	1248	127	6964	8021	8439	3657	4532
33 Prince Edward.....	584	439	904	948	1133	90	3808	3930	3849	3316	3202
34 Renfrew.....	2063	1446	1865	1899	1395	92	6631	7147	7156	3649	4764
35 Simcoe.....	3670	2462	3664	3747	2618	145	14616	14957	14785	8587	9369
36 Stormont.....	1074	755	1087	1056	704	20	4337	3904	3884	1003	2573
37 Victoria.....	2072	1807	2085	2145	1393	59	7838	8148	8323	4804	5637
38 Waterloo.....	1940	1245	1649	1937	1075	118	7323	7921	7893	6446	5396
39 Welland.....	1009	671	1066	1431	1272	142	4673	4912	4995	3940	3410
40 Wellington.....	2769	1912	2688	2993	1786	279	11475	11757	11698	6388	7276
41 Wentworth.....	1312	796	1124	1546	1388	109	6136	6369	6460	3439	3830
42 York.....	2898	2071	2634	3057	2602	264	11798	12206	11974	8631	8628
43 Districts.....	2009	1408	1835	1897	591	318	6501	6216	5914	2718	3198
Total.....	80634	54512	75317	84323	59754	6811	316536	327240	330002	212123	214823
CITIES.											
1 Belleville.....	572	342	467	486	338	...	2145	2205	2193	2009	1508
2 Brantford.....	506	398	389	749	364	43	2424	2369	2424	2369	2339
3 Guelph.....	441	299	305	824	381	...	2148	2177	2025	1974	1467
4 Hamilton.....	2069	1469	1355	1959	1051	180	7868	7147	7973	7682	4567
5 Kingston.....	703	443	589	846	468	319	3308	3328	3328	3186	2368
6 London.....	1569	1017	976	1572	778	...	5680	5553	5401	4765	3854
7 Ottawa.....	1607	1446	1256	1068	407	297	4707	5277	5352	4941	3599
8 St. Catharines.....	575	282	391	457	366	...	2032	2071	2071	1797	1302
9 St. Thomas.....	619	404	663	433	286	...	2435	2435	2435	2435	2369
10 Stratford.....	470	231	351	550	264	...	1866	1866	1866	1841	1393
11 Toronto.....	5792	3196	5011	4152	2233	993	20980	20201	21198	20471	20437
Total.....	14956	9527	11753	13096	6936	1832	55593	54629	56266	53470	45203

Public Schools of Ontario.

DIFFERENT BRANCHES OF INSTRUCTION.

	Music.	Grammar and Composition.	English History.	Canadian History.	Object Lessons.	Temperance and Hygiene.	Domestic Economy (for girls).	Drill and Calisthenics.	Book-keeping.	Algebra.	Geometry and Mensuration.	Euclid.	Elementary Physics.	Agriculture.
1	1608	1805	1056	1341	1305	507	.....	1170	225	173	525	143	91	.....
2	4859	7319	2183	2195	6092	1619	332	2400	363	311	703	274	120	.....
3	1110	3748	1092	656	1621	252	91	806	155	214	437	190	26	37
4	2518	2716	833	825	2605	1038	42	1742	104	86	231	82	21	4
5	1019	2812	810	693	1816	41	.....	978	62	87	201	75	38	.....
6	730	3190	1020	350	1051	213	.....	1175	128	213	290	181	33	.....
7	2112	4860	1616	2209	5562	715	45	2497	266	193	635	173	160	169
8	2901	4294	1171	1605	3479	1604	366	1523	90	92	186	97	144	1
9	1360	2736	740	786	1682	286	222	715	62	48	70	33	9	.....
10	407	2367	713	578	2547	234	.....	127	50	36	107	32	5	.....
11	320	2405	949	591	624	70	.....	303	89	61	166	64	33	.....
12	4644	7531	2491	2746	5050	1375	59	2969	388	241	700	179	86	122
13	1383	2767	1067	249	1696	219	.....	1979	127	135	273	116	43	.....
14	93	425	92	51	10	20	.....	55	5	7	1	6	.....	.....
15	1765	2349	686	663	3591	703	45	1569	179	93	217	96	33	.....
16	2960	5394	1073	1327	4572	773	1	3798	310	174	377	174	52	.....
17	6981	8670	3337	4508	7625	5530	94	5110	594	568	1914	536	211	23
18	3004	7206	1637	1433	3920	1410	108	1816	253	230	476	254	97	1
19	3377	6950	1984	1920	4820	1810	116	3779	320	288	723	251	117	.....
20	722	2925	993	1309	2097	268	19	520	63	113	92	114	30	.....
21	509	3204	1226	750	985	220	16	575	83	85	79	53	17	.....
22	562	2809	897	357	1293	183	.....	741	77	66	88	58	32	4
23	504	2454	919	543	1406	680	.....	821	113	70	136	63	14	.....
24	5193	8413	2976	1046	4963	2642	47	5315	459	469	854	508	202	39
25	1667	3232	1082	545	865	233	63	1537	313	135	211	127	55	.....
26	1215	3835	1425	1135	2381	495	.....	2584	266	155	298	153	56	.....
27	3629	4949	2082	978	3592	1131	92	2161	281	222	485	187	72	40
28	1599	4660	1830	1369	2813	735	.....	1879	301	288	700	212	337	79
29	1121	2386	906	1084	1978	385	.....	1282	100	55	198	47	21	.....
30	3109	4621	1475	1435	2760	834	60	1841	130	485	870	451	17	68
31	217	3053	620	409	1042	.....	.....	568	41	40	231	41	2	.....
32	1334	3679	757	720	3690	441	139	1394	85	47	173	36	23	.....
33	682	2613	979	844	1327	1751	.....	787	204	117	235	103	45	.....
34	527	4045	1094	1068	1978	.....	78	639	137	78	151	47	8	.....
35	6007	7567	2810	3153	5897	3244	270	5146	316	223	475	203	120	73
36	261	2031	602	366	570	53	61	352	95	53	122	47	3	.....
37	2188	4020	1340	1137	1325	469	.....	715	325	193	300	128	152	88
38	4048	3845	958	1290	3375	1829	173	2171	210	152	541	116	69	58
39	2284	2888	993	652	2139	671	37	1937	271	135	139	64	152	130
40	3664	5945	1927	2638	3340	1123	87	2464	264	247	674	204	109	.....
41	1165	3498	1252	1017	1595	595	37	1310	127	122	490	114	39	.....
42	3892	7075	2613	2392	5178	2050	285	4151	309	210	521	226	82	.....
43	2410	2176	691	839	2800	618	28	1118	310	39	118	29	8	.....
	91660	175467	56997	51802	119057	39069	3013	76519	8650	7049	15413	6287	2975	936
1	1130	1063	328	57	979	.....	.....	1353	.....	.....	57	.....	.....	.....
2	2287	1186	429	697	1715	1626	58	2302	121	49	58	3	.....	.....
3	1154	1224	242	114	871	377	67	1902	21	21	21	3	.....	.....
4	5071	3344	1075	2065	5340	25	465	5688	70	70	70	50	45	.....
5	2744	2010	736	379	2398	631	492	2226	213	280	278	278	125	.....
6	5453	2614	1087	204	2406	1376	64	3329	80	256	379	162	.....	.....
7	3795	3301	655	903	2156	.....	1034	2088	621	370	.....	280	.....	.....
8	534	2071	436	110	1609	728	223	534	252	25	531	25	4	.....
9	884	1112	258	143	988	50	149	515	115	.....	.....	.....	.....	.....
10	1580	1264	264	186	1258	108	92	1866	.....	.....	.....	.....	.....	.....
11	20885	19633	1858	3157	16146	8572	4270	19519	1651	1625	1806	1049	38	.....
	45517	38822	7368	8015	35866	13493	6914	41322	3144	2696	3200	1850	212	.....

II.—TABLE B.—The

NUMBER OF PUPILS IN THE

TOWNS.	READING.						Spelling.	Writing.	Arithmetic.	Drawing.	Geography.
	1st Reader, Part I.	1st Reader, Part II.	2nd Reader.	3rd Reader.	4th Reader.	5th Reader.					
1 Almonte.....	126	133	143	139	81	18	622	622	622	223	622
2 Amherstburg.....	168	128	149	120	97	18	637	642	654	362	298
3 Barrie.....	354	175	224	215	182	.....	1068	1068	1150	1068	520
4 Berlin.....	391	111	214	170	130	.....	963	1015	980	942	478
5 Blenheim.....	73	67	101	77	56	27	401	401	401	401	280
6 Bothwell.....	80	17	59	56	20	8	220	240	230	230	104
7 Bowmanville.....	185	122	144	172	131	.....	711	671	711	661	374
8 Brampton.....	175	204	147	130	104	.....	585	662	687	760	381
9 Brockville.....	427	318	299	398	244	8	1570	1375	1588	308	1171
10 Chatham.....	522	321	432	444	324	.....	1991	1991	1991	1943	1738
11 Clinton.....	158	122	72	206	82	.....	482	423	640	640	368
12 Cobourg.....	192	186	226	224	147	9	984	928	984	893	825
13 Collingwood.....	299	169	232	294	149	.....	1143	1143	1143	1143	577
14 Cornwall.....	424	178	311	211	167	.....	1245	1225	1291	1291	651
15 Dresden.....	148	112	93	81	89	24	346	346	346	346	334
16 Dundas.....	163	124	194	257	175	.....	900	830	900	543	533
17 Durham.....	47	39	92	69	38	15	253	214	300	300	300
18 Galt.....	374	183	213	399	149	66	1358	1363	1388	1323	700
19 Goderich.....	142	207	206	268	190	.....	1013	1013	1013	529	662
20 Harriston.....	111	95	116	85	73	.....	376	369	369	480	274
21 Ingersoll.....	178	132	219	218	214	.....	951	961	961	908	908
22 Kincardine.....	152	91	207	216	117	.....	783	783	783	705	482
23 Lindsay.....	357	202	258	328	249	45	1439	1314	1439	1278	938
24 Listowel.....	115	100	149	194	66	.....	624	509	509	409	342
25 Meaford.....	96	27	145	149	89	20	455	526	526	215	336
26 Milton.....	102	78	60	67	22	18	347	347	347	347	246
27 Mitchell.....	123	141	114	148	41	.....	517	567	567	567	303
28 Mount Forest.....	143	95	146	154	70	.....	570	608	608	608	370
29 Napanee.....	173	93	252	157	178	.....	779	853	853	853	533
30 Newmarket.....	86	71	123	131	61	.....	440	452	472	433	253
31 Niagara.....	56	41	54	73	33	.....	237	257	257	257	201
32 Niagara Falls.....	126	162	117	88	84	.....	479	489	474	509	260
33 Oakville.....	82	96	82	82	70	.....	412	412	412	396	234
34 Orangeville.....	179	150	131	126	126	.....	712	712	712	712	455
35 Orillia.....	217	158	211	181	178	.....	762	945	945	863	490
36 Oshawa.....	229	179	245	259	63	.....	881	933	949	925	595
37 Owen Sound.....	255	193	269	266	153	.....	936	1136	1136	1077	688
38 Palmerston.....	201	74	107	28	22	.....	432	432	432	.....	231
39 Paris.....	143	133	156	230	107	.....	769	769	769	396	707
40 Parkdale.....	240	156	152	160	105	60	873	873	873	873	633
41 Pembroke.....	285	119	182	131	115	.....	771	771	771	538	578
42 Penetanguishene.....	124	49	28	17	14	4	175	175	175	150	63
43 Perth.....	128	87	174	163	109	.....	661	661	661	588	446
44 Peterboro'.....	502	303	485	354	293	7	1944	1901	1901	1901	1428
45 Petrolia.....	260	168	220	178	160	.....	986	986	986	986	986
46 Picton.....	146	87	143	120	95	.....	578	578	578	552	405
47 Port Arthur.....	218	152	136	107	70	9	692	692	692	452	322
48 Port Hope.....	221	149	209	225	180	92	1076	1076	1076	1076	706
49 Prescott.....	107	120	90	99	168	.....	584	584	584	584	427
50 Rat Portage.....	73	44	36	13	18	.....	184	184	184	184	124
51 Ridgeway.....	107	74	143	101	98	.....	416	413	523	523	272
52 Sandwich.....	78	37	31	70	37	.....	232	232	238	168	132
53 Sarnia.....	366	154	316	242	193	.....	1118	1236	1271	1082	1149
54 Seaford.....	136	109	138	133	148	.....	664	664	664	664	281
55 Simcoe.....	99	85	140	125	110	.....	559	559	559	110	325
56 Smith's Falls.....	130	162	63	115	80	.....	550	550	550	46	382
57 St. Mary's.....	161	131	221	267	143	.....	877	877	896	784	716
58 Strathroy.....	167	125	207	133	169	.....	801	801	801	801	509

Public Schools of Ontario.

DIFFERENT BRANCHES OF INSTRUCTION.

	Music.	Grammar and Composition.	English History.	Canadian History.	Object Lessons.	Temperance and Hygiene.	Domestic Economy (for girls).	Drill and Calisthenics.	Book-keeping.	Algebra.	Geometry and Mensuration.	Euclid.	Elementary Physics.	Agriculture.
1		240	71	86	212									
2	255	243	123	72	439		83	206	32	27	27	22	6	
3	272	424	87	141	545		32	78	20					
4	364	297	118	129	897		97	248		27	27	27	27	
5	345	160	83		122				27	27	27	27	27	
6		84	18	18				150		8	18	8	3	
7	471	289	58		274									
8	760	234	234	130	656	381		760						
9	40	671	231	80	205	110	157	220	10	8	8	8		
10	1937	1685	450	173	1480	1065	654	1641						
11	640	368	82	60	550	288		640	40	40	40	40	6	
12	241	701	162	188	732			690						
13	90	490	74	149				90						
14	863	651	163	297	1110			433			77			
15	334	334	66	30	334			346	24	24	66	24	24	
16	566	534	262	148	492		65	890	12		15	15		
17	214	214	122	178	178				53	15	15	15		
18	614	564	215	100	498	178		50	3	14	86	10		
19		495	182	274	99	49	66	120						
20	407	274	73		407	128		348						
21	711	651	224	331	740	353		853			8			
22	542	373	117	62	590			106						
23	864	800	288	266	270			1174	113	59	150	59	49	
24	342	409	66	62	364				20	20	70	20		
25	215	336	151	151	229				18	18	18	18	20	
26	347	245	40	58	347	58		347	18	18	18	18	20	
27	416	227	41	110	295			567						
28	364	370	70	224	384			608	4	4		4	70	
29	305	399	223	45	69			236	35					
30	256	253	61	110	333			281						
31		146	33		111	60								
32	364	250	84	75	439	75		429	81		75			
33	284	228	91	24	345		20	66						
34	591	581	126		586			641						
35	36	442	178	201	48						20			
36	127	480	63	162	76			127						
37		437	204	104	503	1055		61	61					
38	282	231	157		275			275		22	22			
39	98	466	128	120	286		18	98	38		6			
40	873	477	165	325	708	477	336	873	60	60	60	60	60	
41	415	552	153	83	653			241						
42	200	63	18	18					16	3		3	2	
43	125	446	147	155	340			531						
44	458	1248	300	297	1766	501	458	1711	7	7	7	7	7	
45	900	488	308	311	986			986					100	
46	538	405	95	142	366	502		502			79			
47	235	237	64	72	370	32	62	249	5	5				
48		706	166	180		74			74	59		59		
49	384	497	168	157	254				5		168			
50	184	49	31	31	106			75						
51	461	272	62	31	211			244		25				
52	227	113	25	57	253	253	25	253	24					
53	1037	602	162	140	798		65	1037						
54	664	148	148		664			383			69			
55	240	250	110	110										
56	470	80	195	85	470									
57	923	431	253	300	723									
58	632	302	80		499			499						

II.—TABLE B.—The

NUMBER OF PUPILS IN THE

TOWNS— <i>Continued.</i>	READING.						Spelling.	Writing.	Arithmetic.	Drawing.	Geography.
	1st Reader, Part I.	1st Reader, Part II.	2nd Reader,	3rd Reader.	4th Reader.	5th Reader.					
59 Thorold.....	135	74	114	175	106	21	625	605	615	572	495
60 Tilsonburg.....	131	143	60	40	77	.....	451	451	451	451	451
61 Trenton.....	332	157	186	152	119	.....	946	946	946	946	608
62 Walkerton.....	202	66	128	133	90	.....	619	619	619	619	325
63 Waterloo.....	106	79	117	99	128	.....	486	486	529	529	282
64 Welland.....	47	39	44	166	46	.....	342	342	342	20	146
65 Whitby.....	130	79	105	184	179	.....	563	660	660	613	460
66 Windsor.....	203	243	327	376	167	.....	979	1009	1029	1089	978
67 Wingham.....	92	73	94	136	82	32	509	509	509	509	274
68 Woodstock.....	365	238	307	241	189	.....	1340	1340	1340	1340	1340
Total	12863	8729	11308	11565	8059	483	49994	50356	51542	41594	45005
TOTALS.											
1 Counties, etc.....	80634	54512	75317	84323	59754	6811	316536	327240	330002	212123	214823
2 Cities.....	14956	9527	11753	13096	6936	1832	55593	54629	56266	53470	45203
3 Towns.....	12863	8729	11308	11565	8059	483	49994	50356	51542	44594	45005
4 Grand Total, 1885	108453	72768	98378	108984	74749	9126	422123	432225	437810	310187	305031
5 " " 1884	167722		106017	112873	70713	9592	410992	416588	422076	247715	280953
6 Increase	13499				4036	.....	11131	15637	15734	62472	24078
7 Decrease			7639	3889	.....	466	.....	.....	.....	.....	.....
8 Percentage of grand total as compared with total attendance.....	38		21	23	16	2	90	92	93	66	65

Public Schools of Ontario.

DIFFERENT BRANCHES OF INSTRUCTION.

	Music.	Grammar and Composition.	English History.	Canadian History.	Object Lessons.	Temperance and Hygiene.	Domestic Economy (for girls)	Drill and Callisthenics.	Bookkeeping.	Algebra.	Geometry and Mensuration.	Euclid.	Elementary Physics.	Agriculture.
59	438	173	108	131	523	443	111	142	42	29	95	30		
60	451	451	77	77	191			451	40	40		40		
61	716	499	71		312			643						
62	292	223	52	90	375	223		619						
63	572	227	128		339			354						
64	70	46	20	20	86			86			20			
65	282	423	126	206	350	146		351						
66	78	562	212	78	583	95	100		11	4	21	4		
67	395	250	114	161	395			124	32	32		32	32	
68	1340	1340	189	306	1216	1340		1340						
	28157	27836	8966	7865	29057	8386	2349	24183	907	550	1252	490	406	....
1	91660	175467	56997	51802	119057	39069	3013	76519	8650	7049	15413	6287	2975	936
2	45517	38822	7368	8915	37865	13493	6914	41322	3144	2696	3200	1850	312	....
3	28157	27836	8966	7865	29057	8386	2349	24183	907	550	1252	490	406	....
4	165334	242125	73331	67682	183980	60948	12276	142324	12701	10295	19865	8627	3593	936
5	150510	220566	94754		179346	52966	14184	101847	.....	10064	10884	.....	1848	489
6	14824	21599	46259		4634	7952	.....	40477	.....	231	8981	.....	1745	447
7							1908							
8	35	51	16	14	38	13	3	30	3	2	4	2	1	15%

III.—TABLE C.—The Public

PUBLIC SCHOOL

TOTAL.	TOTAL.			ANNUAL	
	Public School Teachers	Male.	Female.	Highest Salary paid.	Average Salary of Male Teacher.*
				\$	\$
1 Counties, etc.	5668	2462	3206	900	405
2 Cities	820	131	689	1200	776
3 Towns	730	151	579	1000	612
4 Grand Total, 1885	7218	2744	4474	1200	427
5 " 1884	7085	2789	4296	1200	426
6 Increase.	133		178		1
7 Decrease		45			
8 Percentage of Total		38	62		

* In calculating the average salaries, those of such R. C. Separate

† There are, in addition, 65 teachers holding 1st Class Provincial

Schools of Ontario.

TEACHERS.

SALARIES.		CERTIFICATES.							
Average Salary of Female Teacher.*	No. of Teachers who have attended Normal Schools.	Total number of Certificates.	Provincial 1st Class.†	Provincial 2nd Class.‡	1st Class Co. Board (old).	2nd Class Co. Board (old).	3rd Class.	Temporary Certificates	Other Certificates.
1 267	1385	5668	101	1608	100	69	3302	463	25
2 359	477	820	104	417	7	3	85	3	201
3 287	299	730	49	333	36	12	205	34	61
4 281	2161	7218	254	2358	143	84	3592	500	287
5 279	1941	7085	235	2237	168	118	3420	623	284
6 2	220	133	19	121	.....	.....	172	.....	3
7 .....	.....	.....	.....	.....	25	34	.....	123	.....
8	30	.....	3	33	2	1	50	7	4

School Teachers as are members of religious orders, are omitted.

Certificates, and 30 holding 2nd Class, employed in the High Schools.

IV.—TABLE D.—The Public

TOTALS.	TOTAL.	SCHOOL HOUSES.							TITLE.	
	Number of School Sections.	Number of Schools open.	Number of Schools closed or not reported.	Brick.	Stone.	Frame.	Log.	Total.	Freehold.	Rented.
1 Total Counties, etc	5068	5020	48	1690	461	2263	612	5026	4912	114
2 " Cities,	178	178		138	29	11		178	174	4
3 " Towns,	197	197		126	26	43	2	197	193	4
4 Grand Total, 1885,	5443	5395	48	1954	516	2317	614	5401	5279	122
5 " 1884,	5375	5316	59	1879	511	2323	631	5344	5203	141
6 Increase,	68	79		75	5			57	76	
7 Decrease,			11			6	17			16
8 Percentage of Total		99	1	36	10	43	11		98	2

Schools of Ontario.

SCHOOL VISITS.				EXAMINATIONS, PRIZES.		LECTURES.			PRAYERS.	MAPS.		TREES	AVERAGE DAYS OPEN.
Inspectors.	Trustees.	Other persons.	Total.	Number of Examinations.	Number of Schools distributing Prizes.	Inspectors.	Other persons.	Total.	Number of Schools in which authorized Scripture Readings and Prayers are used.	Number of Schools using Maps.	Total Number of Maps.	Number of Trees planted on Arbor Day.	Average Number of legal teaching days open.
1 9718	14002	39219	62939	6098	1367	327	128	455	4442	4837	35916	37783	208
2 2118	2016	2898	7032	245	149	6	10	16	116	178	1801	10	204
3 1526	1595	3527	6648	295	54	20	14	34	185	202	2399	1147	207
4 13362	17613	45644	76619	6638	1570	353	152	505	4743	5217	40116	38940	208
5 13038	16656	46486	76180	6618	1535	341	156	497	.....	5163	40022	.....	208
6 324	957	.....	439	20	35	12	.....	8	.....	54	94	38940	.....
7 .....	.....	842	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
8 17	23	60	.....	.....	29	70	30	.....	*92	97	.....	.....	.....

* In this column Separate Schools are not included.

V.—TABLE E.—The Public

COUNTIES. (Including Incorporated Villages, but not Cities or Towns.)	RECEIPTS.					
	For Teachers' Salaries. (Legislative Grants.)			Municipal School Grants and As- sessment.	Clergy Reserves Fund, Balances and other Sources.	Total Receipts for all Public School Pur- poses.
	Public Schools.	R. C. Separate Schools.	Total.			
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1 Brant	2184 00		2184 00	24615 26	12475 41	39274 67
2 Bruce	6703 00	125 50	6828 50	78977 00	20974 48	106779 98
3 Carleton	4115 00	351 50	4466 50	44986 01	25817 64	75270 15
4 Dufferin	3320 00		3320 00	27772 65	7849 88	38942 53
5 Dundas	2533 00		2533 00	27660 77	4732 07	34925 84
6 Durham	3248 50		3248 50	44031 39	6685 88	53965 77
7 Elgin	3977 00		3977 00	47331 64	18389 93	69638 57
8 Essex	4613 00	161 00	4774 00	53804 30	15748 10	74326 40
9 Frontenac	3309 86	101 00	3410 86	33016 25	9145 20	45572 31
10 Glengarry	2425 00	230 50	2655 50	22824 97	5319 81	30800 28
11 Grenville	2279 00	20 50	2299 50	26719 93	7256 70	36276 13
12 Grey	2237 00	216 00	2453 00	79852 51	21781 25	109086 76
13 Haldimand	2917 00		2917 00	36944 09	10457 32	50318 41
14 Haliburton	1974 80		1974 80	7038 70	2069 92	11083 42
15 Halton	2363 00		2363 00	29052 76	7645 37	38061 13
16 Hastings	5613 00		5613 00	53353 46	16395 53	75361 99
17 Huron	7104 00	106 50	7210 50	84077 68	16242 39	107530 57
18 Kent	4267 00	252 00	4519 00	55194 46	26729 54	85443 00
19 Lambton	5267 00	47 50	5314 50	79412 52	19712 74	97439 76
20 Lanark	3538 00	2 00	3540 00	35896 96	8066 01	47502 97
21 Leeds	3793 60	12 50	3806 10	35453 27	10632 33	49791 70
22 Lennox and Addington	2961 50	34 00	2995 50	30928 88	12665 70	46590 08
23 Lincoln	2513 00	98 00	2611 00	30705 89	11740 17	45067 06
24 Middlesex	7742 00	139 50	7881 50	92261 53	21800 33	121943 36
25 Norfolk	3523 00	21 00	3544 00	41199 50	18161 49	62904 99
26 Northumberland	4058 00	107 00	4165 00	46399 93	14004 06	64568 99
27 Ontario	5765 50	30 00	5795 50	59843 28	14837 12	80475 90
28 Oxford	4259 00		4259 00	55419 70	20322 46	80001 16
29 Peel	2600 00	21 00	2621 00	30239 45	11184 29	44044 74
30 Perth	4209 00	76 00	4285 00	52494 76	15681 64	72461 40
31 Peterborough	3161 00	43 00	3204 00	31758 32	6226 46	41188 78
32 Prescott and Russell	4145 00	382 50	4527 50	39972 25	8040 69	52540 44
33 Prince Edward	2051 00		2051 00	27142 61	8217 56	37411 17
34 Renfrew	6132 50	309 00	6441 50	38655 29	11267 36	56354 15
35 Simcoe	8643 75	59 50	8703 25	80169 28	32433 41	121306 94
36 Stormont	1895 00	132 50	2027 50	22667 77	3259 71	27944 98
37 Victoria	4687 00		4687 00	50664 29	18536 16	73887 45
38 Waterloo	3661 00	287 00	3948 00	50928 86	23076 28	77953 14
39 Welland	2868 00	46 50	2914 50	31084 89	19712 09	53711 48
40 Wellington	5560 00	257 50	5817 50	69327 45	23486 59	98631 54
41 Wentworth	3307 00	19 00	3326 00	33249 15	19365 08	55940 23
42 York	7047 00	75 00	7122 00	71571 14	31592 21	110285 35
43 Districts	14084 00	257 75	14341 75	52816 07	16161 45	83319 27
Total	187655 01	4022 25	191677 26	1969506 87	634789 81	2785973 94
CITIES.						
1 Belleville	1004 00	267 50	1271 50	2677 27	12983 59	16832 36
2 Brantford	1550 00	168 00	1718 00	14630 02	2698 22	19046 24
3 Guelph	1140 00	225 00	1365 00	15466 16	784 37	17615 53
4 Hamilton	4436 00	922 50	5358 50	46139 61	40373 42	91871 53
5 Kingston	1629 00	576 50	2205 50	20040 44	1711 62	23957 56
6 London	3545 00	476 50	4021 50	32249 52	14298 54	50659 56
7 Ottawa	1854 00	2192 50	4046 50	44563 00	9647 64	58267 14
8 St. Catharines	979 00	367 00	1346 00	14824 75	1540 05	17710 80
9 St. Thomas	1443 00	147 00	1590 00	14761 42	3039 87	19381 29
10 Stratford	1083 00	222 00	1305 00	9268 49	1492 33	12065 82
11 Toronto	12164 00	2126 00	14290 00	215575 68	40450 47	270316 15
Total	30627 00	7690 50	38317 50	430186 36	128920 12	597623 98

Schools of Ontario.

EXPENDITURE.

	For Teachers' Salaries.	For Maps, Apparatus, Prizes and Libraries.	For Sites and Building School-houses.	For Rents and Repairs, Fuel and other expenses.	Total Expenditure for all Public School Purposes.	Balances.	Average Cost per Pupil.	
							On Total Attendance.	On Average Attendance.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1	24858 17	230 38	1348 12	7468 91	33905 58	5369 09	7 87	11 61
2	70601 69	278 06	10180 15	12911 28	93971 18	12908 80	5 90	13 23
3	38862 03	559 69	17958 93	10421 33	67801 98	7468 17	7 23	17 14
4	23945 56	486 29	3435 82	5616 06	33483 73	5458 80	5 83	15 97
5	25269 64	12 50	2851 89	3688 60	31822 63	3103 21	6 10	13 61
6	39336 81	276 97	1033 75	7477 40	48124 93	5840 84	7 27	16 38
7	43178 34	306 61	4935 90	11005 95	59426 80	10271 77	7 38	15 96
8	46220 31	759 78	6021 60	10490 17	63491 86	10834 54	6 52	14 90
9	29150 62	118 55	3056 72	6284 39	38610 28	6962 03	5 80	16 01
10	20266 91	80 07	4258 34	3239 58	27844 89	2955 39	5 67	12 55
11	26820 21	25 00	339 56	5237 07	32421 84	3854 29	5 61	13 31
12	72511 04	504 48	10674 60	13427 88	97118 00	11968 76	5 66	14 79
13	32054 53	103 86	3815 05	5599 69	41573 13	8745 28	6 91	14 48
14	7446 52	67 96	279 40	1616 21	9410 09	1673 33	6 25	20 73
15	27169 32	97 43	1248 00	5020 56	33535 81	4525 82	6 72	14 57
16	51306 36	309 04	4249 30	7498 20	63362 90	11999 09	6 21	14 48
17	79512 65	445 01	3096 62	11852 42	94906 70	12623 87	5 93	12 75
18	49155 33	664 52	7120 75	12102 66	69043 26	16399 74	6 66	16 19
19	62387 90	614 09	8402 59	13161 07	84565 65	12874 11	7 29	14 86
20	32133 69	180 90	2654 27	7490 50	42459 36	5043 61	6 68	13 49
21	34360 25	62 55	2638 56	6668 45	43729 81	6061 89	6 42	15 18
22	27783 90	109 15	6278 42	6148 74	40320 21	6269 87	7 19	17 89
23	27006 91	69 12	1107 88	4915 98	33099 89	11957 17	7 04	15 44
24	84449 30	453 22	4590 95	15427 87	104921 34	17022 02	7 00	14 40
25	36574 61	278 37	4323 65	7152 17	48328 80	14576 19	6 14	14 41
26	41700 47	367 93	6711 91	8484 89	57265 20	7303 79	7 00	15 29
27	52451 23	699 43	5756 51	12494 04	71401 21	9074 69	6 86	14 32
28	50699 87	333 88	4378 53	9185 17	64597 45	15403 71	7 13	14 69
29	30398 20	157 48	331 24	6234 64	37121 56	6923 18	6 60	16 21
30	44655 58	749 45	8757 77	8805 32	62968 12	9493 28	6 98	14 32
31	28906 91	148 89	2416 88	5404 54	36877 22	4311 56	6 47	15 04
32	34444 48	605 78	5733 84	6462 13	47246 23	5294 21	4 88	11 94
33	25802 56	17 65	1694 00	4823 56	32337 77	5073 40	7 89	17 63
34	35944 06	202 21	6567 97	5687 39	48361 63	7992 52	5 52	14 36
35	70620 91	643 90	19058 11	17116 13	107439 05	13866 89	6 59	15 64
36	19092 31	36 23	3330 74	3007 78	25467 06	2477 92	5 42	13 55
37	47402 41	272 62	8586 58	9233 55	65495 16	8392 29	6 85	17 18
38	46962 83	307 25	2285 29	11425 44	60980 81	16972 33	7 66	14 42
39	29491 26	35 73	967 65	6667 81	37162 45	16549 03	6 65	16 14
40	60055 65	593 44	11585 53	13494 52	85729 14	12902 40	6 90	14 86
41	33540 98	580 25	5743 84	7866 23	47731 30	8208 93	7 61	16 55
42	68096 17	867 33	7166 96	15904 02	92034 48	18250 87	6 80	15 41
43	49007 15	512 27	12640 18	9655 67	71815 27	11504 00	8 91	24 76
1781595 63		14225 32	229614 34	363875 97	2389311 26	396662 68	6 61	15 07
1	10323 31	.....	1630 00	3851 72	15805 03	1027 33	7 12	12 48
2	10552 88	1392 79	337 05	6567 09	18849 81	196 43	7 69	12 07
3	10478 74	54 25	702 00	5267 71	16502 70	1112 83	7 32	12 30
4	40933 04	584 84	31921 53	17439 80	90879 21	992 32	11 24	17 57
5	14227 18	318 67	1138 75	7776 08	23460 68	496 88	6 97	11 44
6	21520 59	67 74	2059 99	10306 53	33954 85	16614 71	5 74	10 60
7	27587 80	714 36	7047 22	17364 60	52713 98	5543 16	8 67	14 16
8	12000 85	2 10	.....	4391 67	16394 62	1316 18	7 91	12 60
9	9632 40	41 43	4862 74	2313 68	16840 25	2541 04	6 91	11 80
10	8087 25	40 92	420 00	2791 48	11339 65	726 17	6 08	9 72
11	130901 89	1362 67	50898 37	57757 21	240920 14	29396 01	11 27	17 30
296235 93		4579 77	101017 65	135827 57	537660 92	59963 06	9 25	14 88

V.—TABLE E.—The Public

TOWNS.	RECEIPTS.					
	For Teachers' Salaries. (Legislative Grants.)			Municipal School Grants and As- sessments.	Clergy Reserves Fund, Balances and other Sources.	Total Receipts for all Public School Pur- poses.
	Public Schools.	R. C. Separate Schools.	Total.			
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1 Almonte	299 00	91 00	390 00	4555 24	2045 55	6990 79
2 Amherstburg	138 00	179 00	317 00	2953 89	2402 03	5672 92
3 Barrie	644 00	102 50	746 50	5369 53	660 09	6776 12
4 Berlin	655 00	99 50	754 50	6746 83	3756 21	11257 54
5 Blenheim	179 00		179 00	1256 32	1845 52	3280 84
6 Bothwell	132 00		132 00	1702 42	4920 82	6755 24
7 Bowmanville	493 00		493 00	3982 00	313 23	4788 23
8 Brampton	553 00		553 00	5125 00	113 92	5791 92
9 Brockville	787 00	256 00	1043 00	9354 60	1467 25	11864 85
10 Chatham	1166 00	166 50	1332 50	15163 83	10545 62	27041 95
11 Clinton	504 00		504 00	3050 00	236 14	3790 14
12 Cobourg	647 00	167 00	814 00	4500 00	1461 81	6775 81
13 Collingwood	693 00		693 00	8002 00	2076 71	10771 71
14 Cornwall	514 00	322 50	836 50	3484 13	3809 46	8130 09
15 Dresden	222 00		222 00	3000 00	2290 54	5512 54
16 Dundas	368 00	164 50	532 50	4074 80	9082 22	13689 52
17 Durham	290 00		290 00	1500 00	509 36	2299 36
18 Galt	853 00	75 50	928 50	8059 07	3252 83	12240 40
19 Goderich	597 00	66 00	663 00	4630 82	550 19	5844 01
20 Harriston	253 00		253 00	2162 90	62 64	2478 54
21 Ingersoll	672 00	65 00	737 00	4584 61	1233 23	6554 84
22 Kincardine	498 00		498 00	3641 00	922 09	5061 09
23 Lindsay	602 00	276 00	878 00	9196 00	1384 86	11458 86
24 Listowel	334 00		334 00	2782 23	62 50	3178 73
25 Meaford	255 00		255 00	2777 63	39 81	3072 44
26 Milton	316 00		316 00	400 00	2275 43	2991 43
27 Mitchell	314 00		314 00	3311 00	119 40	3744 40
28 Mount Forest	429 00		429 00	2164 60	874 00	3467 60
29 Napanee	564 00		564 00	4300 00	374 89	5238 89
30 Newmarket	337 00	44 00	381 00	2956 55	1839 09	5176 64
31 Niagara	186 00		186 00	1300 00	405 62	1891 62
32 Niagara Falls	218 09	36 00	254 00	2951 00	3251 02	6456 02
33 Oakville	190 00	32 00	222 00	1981 06	240 22	2443 28
34 Orangeville	535 00		535 00	4216 00	774 97	5525 97
35 Orillia	386 00	91 50	477 50	4369 21	68 15	4914 86
36 Oshawa	503 00	82 50	585 50	5632 11	507 83	6725 44
37 Owen Sound	734 00	35 50	769 50	6032 46	293 08	7095 04
38 Palmerston	227 00		227 00	1999 54	37 37	2263 91
39 Paris	383 00	59 50	442 50	4394 22	3345 70	8182 42
40 Parkdale				6630 00	5287 46	11917 46
41 Pembroke	220 00	171 50	391 50	5882 06	5321 79	11595 35
42 Penetanguishene	234 00		234 00	1371 73	54 06	1659 79
43 Perth	547 00	96 50	643 50	4647 04	1467 00	6757 54
44 Peterboro'	661 00	362 00	1023 00	9649 81	1834 25	12507 06
45 Petrolia	386 00		386 00	5500 00	273 00	6159 00
46 Picton	456 00	51 50	507 50	4653 78	483 86	5645 14
47 Port Hope	875 00		875 00	6400 00	342 09	7617 09
48 Prescott	388 00	138 00	526 00	2621 87	204 71	3352 58
49 Port Arthur	477 00	183 05	660 05	4410 61	4391 19	9461 85
50 Ridgetown	201 00		201 00	2110 73	423 63	2735 36
51 Rat Portage	31 00	94 50	125 50	560 00	163 29	848 79
52 Sandwich	153 00		153 00	156 00	2372 80	2581 80
53 Sarnia	808 00	115 00	923 00	6166 28	819 07	7908 35
54 Seaforth	315 00		315 00	2500 00	714 75	3529 75
55 Simcoe	481 00		484 00	4621 00		5105 00
56 Smiths Falls	279 00		279 00	2719 20	117 04	3115 24
57 St. Mary's	108 00	49 50	457 50	4126 90	500 76	5385 16
58 Strathroy	659 00		659 00	4250 00	410 84	5319 84

Schools of Ontario.

EXPENDITURE.

	For Teachers' Salaries.	For Maps, Apparatus, Prizes and Libraries.	For Sites and Building School-houses.	For Rents and Repairs, Fuel and other expenses.	Total Expenditure for all Public School Purposes.	Balances.	Average Cost per Pupil.	
							On Total Attendance	On Average Attendance
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1	3715 40	81 43	15 95	987 49	4800 27	2190 52	7 71	12 12
2	3254 91	6 00	1736 85	668 96	5666 72	6 20	8 34	15 40
3	5312 50	28 60		1395 72	6736 82	39 30	5 86	10 25
4	5268 66	45 97	3239 59	2206 71	10760 93	496 61	10 59	19 74
5	1678 34		384 00	356 30	2418 64	862 20	6 03	12 03
6	1101 37	15 33	2373 00	316 20	3805 90	2949 34	15 86	27 18
7	3813 54			846 77	4660 31	127 92	6 18	9 32
8	3505 00		352 50	1193 03	5050 53	741 39	6 64	10 18
9	7857 25	99 51	220 00	3618 05	11794 81	70 04	6 96	10 89
10	13433 48	24 72		5258 07	18716 27	8325 68	9 16	15 74
11	2954 45	101 25		653 20	3708 90	81 24	5 80	9 46
12	4595 00			1375 94	5970 94	804 87	6 07	9 89
13	4190 00		5210 45	917 74	10318 19	453 52	9 03	16 89
14	4375 00			3114 78	7489 78	640 31	5 80	10 86
15	2308 76	6 50		589 72	2904 98	2607 56	5 31	11 18
16	3725 00	5 75	7676 00	1523 72	12930 47	759 05	14 16	24 30
17	1328 08	25 15		946 13	2299 36		7 66	13 85
18	6896 05	71 20	767 51	1550 51	9245 27	2955 13	6 71	10 78
19	4124 33			1703 68	5828 01	16 00	5 75	9 40
20	1875 00			514 34	2389 34	89 20	4 98	9 29
21	5185 00	43 00	107 90	901 37	6237 27	317 57	6 49	11 04
22	3144 29			1241 34	4385 63	675 46	5 60	10 55
23	6212 43	150 14	369 54	4273 71	11005 82	453 04	7 65	12 81
24	2542 72			622 26	3164 98	13 75	5 07	8 58
25	2235 00			829 31	3064 31	8 13	5 63	8 52
26	1900 00		370 90	413 69	2684 59	306 84	7 74	12 26
27	2837 50	11 80		860 86	3710 16	34 24	6 54	10 48
28	2512 50			881 78	3394 28	73 32	5 58	9 53
29	3693 61			1538 35	5231 96	6 93	6 13	11 89
30	2513 00	35 50	30 50	797 09	3376 09	1800 55	7 15	12 79
31	1150 00			278 58	1428 58	463 04	5 56	9 52
32	2385 82	47 89		1824 61	4258 32	2197 70	7 38	12 64
33	1797 00	40 34	100 00	505 94	2443 28		5 93	9 65
34	3884 96		21 00	1303 56	5209 52	316 45	7 31	13 53
35	3716 71		124 87	1002 92	4844 50	70 36	5 13	8 73
36	4749 16	5 60		1807 31	6562 07	163 37	6 73	10 19
37	5319 25			1748 29	7067 54	27 50	6 22	10 79
38	1708 70			541 58	2250 28	13 63	5 21	10 13
39	3625 00	31 85		943 54	4606 39	3576 03	5 99	9 91
40	5363 73	94 15	4461 87	1721 30	11641 05	276 41	13 34	24 15
41	4041 00	32 42	4967 61	1687 58	10728 61	866 74	12 89	19 16
42	723 00		65 00	473 89	1261 89	397 90	5 31	11 90
43	3250 00		1756 95	898 67	5905 62	851 92	8 93	14 55
44	8692 51	104 26	58 38	3481 79	12336 94	170 12	6 34	10 67
45	3371 59			2713 97	6085 56	73 44	6 16	9 45
46	4032 68	54 65		1188 85	5276 18	368 96	8 93	13 64
47	6390 00		204 40	963 02	7557 42	59 67	7 02	10 95
48	2400 00	9 25		794 15	3203 40	149 18	5 48	8 77
49	3521 25	38 69	3275 55	1623 69	8459 18	1002 67	12 22	26 35
50	2300 00			430 79	2730 79	4 57	4 24	9 54
51	558 48	32 25	14 10	175 79	780 62	68 17	4 24	8 66
52	1786 60	70 00		682 80	2539 40	42 40	10 03	19 09
53	5189 34	11 00		2264 30	7464 64	443 71	5 09	10 62
54	2526 50			621 21	3141 71	388 04	4 74	7 80
55	2550 00	8 00	1608 00	789 00	4955 00	150 00	8 86	14 74
56	2355 00			711 84	3066 84	48 40	5 58	8 91
57	3058 28	10 50	6 00	1823 44	4898 22	486 94	5 31	10 63
58	4101 08		159 29	806 93	5067 30	252 54	6 32	16 01

V.—TABLE E.—The Public

TOWNS.— <i>Continued.</i>	RECEIPTS.					
	For Teachers' Salaries. (Legislative Grants.)			Municipal School Grants and As- sessments.	Clergy Reserves Fund, Balances and other Sources.	Total Receipts for all Public School Pur- poses.
	Public Schools.	R. C. Separate Schools.	Total.			
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
59 Thorold	241 00	108 50	344 50	3294 16	657 22	4295 88
60 Tilsonburg	267 00		267 00	1809 45	479 22	2555 67
61 Trenton	266 00	144 50	410 50	5013 30	741 41	6165 21
62 Walkerton	660 00		660 00	2768 80	2596 91	6025 71
63 Waterloo	300 00		300 00	3400 00	430 79	4130 79
64 Welland	437 00		437 00	2000 00	965 93	3402 93
65 Whitby	498 00	49 50	547 50	4974 71	471 14	5993 35
66 Windsor	1091 00		1091 00	10413 17	1761 33	13265 50
67 Wingham	278 00		278 00	3164 75	168 66	3611 41
68 Woodstock'	963 00		963 00	6650 00	2011 06	9624 06
Total	30253 00	3971 05	34224 05	290427 95	104816 66	429468 66
TOTALS.						
1 Total Counties	187655 01	4022 25	191677 26	1959506 87	634789 81	2785973 94
2 " Cities	30827 00	7690 50	38517 50	430186 36	128920 12	597623 98
3 " Towns	30253 00	3971 05	34224 05	290427 95	104816 66	429468 66
4 Grand Total, 1885	248735 01	15683 80	264418 81	2680121 18	868526 59	3813066 58
5 " " 1884	252339 45	14744 79	267084 24	2675621 46	780432 93	3723138 63
6 Increase		939 01		4499 72	88093 66	89927 95
7 Decrease	3604 44		2665 43			
Percentage of Total	6.52	.41	6.93	70.31	22.76	

Schools of Ontario.

EXPENDITURE.

For Teachers' Salaries.	For Maps, Apparatus, Prizes and Libraries.	For Sites and Building School-houses.	For Rents and Repairs, Fuel and other expenses.	Total Expenditure for all Public School Purposes.	Balances.	Average Cost per Pupil.	
						On Total Attendance	On Average Attendance
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
59 3145 16	.....	.....	724 15	3869 31	426 57	6 19	9 58
60 2020 00	.....	.....	266 76	2286 76	268 91	5 07	8 63
61 3666 49	26 98	454 44	1780 00	5927 91	237 30	6 28	12 15
62 2676 00	.....	17 07	2632 89	5325 96	699 75	8 61	15 44
63 2885 38	.....	.....	945 84	3831 22	299 57	7 24	10 91
64 2185 00	6 00	.....	1157 01	3348 01	54 92	9 79	18 49
65 4540 00	44 70	.....	1339 47	5924 17	69 18	8 75	14 81
66 7385 84	.....	2623 36	2951 50	12960 70	304 80	9 85	14 83
67 1987 50	.....	.....	1570 00	3557 50	53 91	7 00	11 98
68 6096 84	.....	.....	3037 24	9134 08	489 98	6 82	10 82
249218 02	1426 38	42772 58	92311 02	385728 00	43740 66	.....	.....
1 1781596 63	14226 32	229614 34	363875 97	2389311 26	396662 68	6 61	15 07
2 296235 93	4579 77	101017 65	135827 57	537660 92	59963 06	9 25	14 88
3 249218 02	1426 38	42772 58	92311 02	385728 00	43740 66	7 28	12 35
4 2327049 58	20231 47	373404 57	592014 56	3312700 18	500366 40	7 01	14 66
5 2296027 14	17732 15	341198 00	625904 75	3280862 04	442276 59	7 02	14 79
6 31022 44	2499 32	32206 57	.....	31838 14	58089 81	.....	.....
7 .....	.....	.....	33890 19	.....	.....	01	13
70.25	.61	11.28	17.86	.....	.....	.....	.....

VI.—TABLE F.—The Roman Catholic

COUNTIES. (Including Incorporated Villages, but not Cities or Towns.)	Number of Schools.	RECEIPTS.				EXPEN		
		Amount of Legislative Grant for Teachers' Salaries.	Amount received from School Rate on Sup-porters.	Amount subscribed, and from other sources.	Total Amount Received.	Amount paid to Teachers.	Amount paid for Maps, Apparatus, Prizes and Libraries.	Amount paid for Sites and building School-Houses.
		\$ c.	\$ c.	\$ c.	\$.	\$ c.	\$ c.	\$ c.
1 Bruce	3	125 50	1188 26	1345 27	2659 03	885 00	.....	1510 38
2 Carleton	7	351 50	1819 08	115 56	2286 14	1571 44	12 50	16 00
3 Essex	5	161 00	1961 18	1071 86	3194 04	1917 17	20 00	812 20
4 Frontenac	5	101 00	1331 04	382 09	1814 13	1062 00	1 25	.....
5 Glengarry	5	230 50	1134 37	390 50	1755 37	1088 50	2 50	.....
6 Grenville	1	20 50	105 00	42 40	167 90	140 00	.....	.....
7 Grey	9	216 00	2323 96	500 21	3040 17	2330 63	5 00	218 40
8 Huron	4	106 50	1483 42	266 12	1856 04	1310 00	27 15	189 00
9 Kent	6	252 00	2703 55	2343 27	5298 82	2457 00	180 09	1686 11
10 Lambton	2	47 50	555 83	188 12	791 45	570 00	.....	.....
11 Lanark	1	2 00	122 00	9 00	133 00	131 00	.....	.....
12 Leeds	3	12 50	362 94	19 61	395 05	237 90	.....	45 00
13 Lennox & Addington.	2	34 00	515 74	27 56	577 30	368 50	.....	.....
14 Lincoln	2	98 00	847 81	478 39	1424 20	848 00	11 50	.....
15 Middlesex	5	139 50	1199 61	897 77	2236 88	1480 00	10 50	606 00
16 Norfolk	1	21 00	262 33	315 51	598 84	155 13	.....	384 51
17 Northumberland	5	107 00	1579 16	183 79	1869 95	1199 16	20 50	137 75
18 Ontario	1	30 00	530 20	30 00	590 20	396 00	5 35	4 50
19 Peel	1	21 00	133 33	97 76	252 09	187 50	6 00	.....
20 Perth	3	76 00	1025 31	199 47	1300 78	862 50	18 73	223 20
21 Peterborough	2	43 00	495 21	408 20	946 41	410 00	.....	400 00
22 Prescott and Russell.	14	382 50	2928 89	501 83	3813 22	2366 85	15 98	592 50
23 Renfrew	4	309 00	2427 73	249 14	2985 87	2120 50	26 70	10 25
24 Simcoe	2	59 50	496 05	301 58	857 13	550 00	.....	225 93
25 Stormont	4	132 50	941 84	513 34	1587 68	1007 46	5 50	78 26
26 Waterloo	6	287 00	2243 57	1114 19	3644 76	2063 21	14 00	417 95
27 Welland	1	46 50	417 00	276 38	739 88	350 00	.....	.....
28 Wellington	7	257 50	2479 34	169 26	2906 10	1998 33	.....	333 00
29 Wentworth	1	19 00	158 14	75 36	252 50	225 00	.....	.....
30 York	2	75 00	206 60	429 83	711 43	505 00	.....	54 95
31 Districts	3	257 75	1464 91	38 94	1761 60	1022 60	57 54	.....
Total	117	4022 25	35443 40	12982 31	52447 96	31816 38	440 79	7945 89
CITIES.								
1 Belleville	5	267 50	2535 00	1325 49	4127 99	1673 50	.....	1630 00
2 Brantford	1	168 00	897 02	764 12	1829 14	979 05	77 43	337 05
3 Guelph	3	225 00	2965 38	697 37	3887 75	1700 00	54 25	702 00
4 Hamilton	6	922 50	6500 00	8273 19	15695 69	3000 00	232 08	9725 82
5 Kingston	4	576 50	3240 44	807 69	4624 63	2603 00	32 39	138 75
6 London	4	476 50	2929 52	1062 89	4468 91	1925 00	37 74	1642 50
7 Ottawa	13	2192 50	12963 00	3617 03	18772 53	11198 55	490 00	321 00
8 Stratford	2	222 00	1568 49	1047 43	2837 92	1425 00	40 92	420 00
9 St. Catharines	5	367 00	2445 75	915 69	3728 44	2125 00	2 10	.....
10 St. Thomas	1	147 00	800 00	24 95	971 95	800 00	14 68	19 75
11 Toronto	13	2126 00	18282 13	36123 52	56531 65	14430 15	340 97	31416 34
Total	57	7690 50	55126 73	54659 37	117476 60	41859 25	1322 56	46353 21

Separate Schools of Ontario.

DITURE.			AVERAGE COST PER PUPIL.		PUPILS.				
Amount paid for other purposes.	Total Amount Expended.	Balances.	On Total Attendance.	On Average Attendance.	Number of Pupils.	Boys.	Girls.	Average Attendance.	Percentage of Average to Total Attendance.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.					
1 159 33	2554 71	104 32	8 71	16 81	291	156	135	152	53
2 530 82	2130 76	155 38	2 93	5 78	726	345	381	369	51
3 338 24	3087 61	106 43	8 90	14 36	347	188	159	215	63
4 480 08	1543 33	270 80	6 10	12 06	253	128	125	128	51
5 467 13	1558 13	197 24	3 34	6 52	467	237	230	239	51
6 20 23	160 23	7 67	3 33	10 00	48	27	21	16	13
7 268 95	2822 98	217 19	5 75	15 26	491	270	221	185	38
8 267 68	1793 83	62 21	7 44	15 33	241	118	123	117	49
9 484 15	4807 35	491 47	8 23	21 55	584	298	286	223	38
10 174 67	744 67	46 78	6 41	13 28	116	60	56	56	48
11 2 00	133 00	.....	6 33	16 62	21	10	11	8	38
12 73 54	356 44	38 61	3 49	12 71	102	63	39	28	28
13 118 83	487 33	89 97	7 06	16 23	69	35	34	30	44
14 266 36	1125 86	298 34	6 70	13 73	168	100	68	82	49
15 128 84	2225 34	11 54	9 16	16 13	243	130	113	138	57
16 39 45	579 09	19 75	10 74	30 54	54	36	18	19	35
17 323 72	1681 13	188 82	8 40	16 81	200	108	92	100	50
18 172 12	577 97	12 23	5 61	9 80	103	59	44	59	57
19 15 00	208 50	43 59	4 52	13 89	46	22	24	15	33
20 135 94	1240 37	60 41	8 00	18 23	155	77	78	68	44
21 48 51	858 51	87 90	9 86	23 83	87	48	39	36	42
22 391 86	3367 19	446 03	4 11	8 48	820	399	421	397	49
23 610 37	2767 82	218 05	4 10	8 33	674	343	331	332	49
24 81 20	857 13	.....	9 02	16 17	95	52	43	53	56
25 374 19	1465 41	122 27	4 58	8 23	320	151	169	178	56
26 560 39	3055 55	589 21	5 21	11 45	587	322	265	267	45
27 305 56	655 56	84 32	5 66	13 12	116	62	54	50	43
28 302 46	2633 79	272 31	4 52	9 21	583	287	296	286	56
29 27 50	252 50	.....	10 50	14 00	24	15	9	18	77
30 151 48	711 43	.....	4 28	10 60	166	94	72	67	40
31 424 44	1504 58	257 02	5 01	9 01	300	150	150	166	55
7745 04	47948 10	4499 86	5 64	11 70	8497	4390	4107	4097	48
1 616 68	3920 18	207 81	9 82	15 00	399	196	203	262	66
2 435 01	1828 54	00 60	6 17	11 43	297	139	158	160	54
3 471 62	2927 87	959 88	7 76	12 67	377	217	160	231	61
4 1786 93	14744 83	950 86	10 27	17 90	1436	543	893	824	57
5 1353 61	4127 75	496 88	4 50	8 60	918	470	448	480	52
6 768 00	4373 24	95 67	5 38	10 29	813	427	386	425	52
7 6762 98	18772 53	.....	5 92	9 92	3357	1742	1615	1892	56
8 250 00	2135 92	702 00	6 51	11 24	328	182	146	190	58
9 902 73	3029 83	698 61	5 67	10 56	534	311	223	287	54
10 131 86	966 29	5 66	3 46	6 62	279	130	149	146	52
11 8083 24	54270 70	2260 95	17 16	26 60	3163	1652	1511	2040	65
21562 66	111097 68	6378 92	9 33	16 01	11901	6009	5892	6937	58

VI.—TABLE F.—The Roman Catholic

COUNTIES. (Including Incorporated Villages, but not Cities or Towns.)	TEACHERS.					NUMBER IN THE					
	Number of Teachers.	Male.	Female.	Average Salary—Male.	Average Salary—Female.	Reading.	Spelling.	Writing.	Arithmetic.	Drawing.	Geography.
1 Bruce	5	1	4	360	131	291	291	291	273	149	142
2 Carleton	10	1	9	230	166	726	574	604	600	195	244
3 Essex	6	3	3	375	238	347	329	343	312	84	158
4 Frontenac	5	5	5	238	253	253	218	219	217	122	163
5 Glengarry	8	1	7	450	134	467	417	422	411	225	224
6 Grenville	1	1	1	168	48	43	43	43	43	12	12
7 Grey	9	2	7	365	210	491	424	399	459	282	308
8 Huron	4	1	3	350	333	241	230	237	237	110	159
9 Kent	7	3	4	409	245	584	416	422	471	188	321
10 Lambton	2	1	1	330	240	116	68	83	73	48	48
11 Lanark	1	1	1	180	21	21	15	15	15	15	9
12 Leeds	3	3	3	171	102	64	65	55	55	6	25
13 Lennox & Addington.	2	2	2	186	69	58	58	59	59	48	41
14 Lincoln	2	2	2	400	168	168	136	136	136	82	124
15 Middlesex	5	5	5	296	243	213	224	220	220	117	130
16 Norfolk	1	1	1	250	54	40	40	45	45	23	23
17 Northumberland	5	1	4	250	245	200	160	185	190	42	118
18 Ontario	1	1	1	396	103	83	103	103	103	103	81
19 Peel	1	1	1	230	46	45	40	40	40	12	30
20 Perth	3	1	2	350	271	155	120	155	155	99	54
21 Peterborough	2	1	1	300	200	87	77	73	77	5	36
22 Prescott and Russell.	15	3	12	224	144	820	345	550	584	112	139
23 Renfrew	8	2	6	425	205	674	559	655	482	380	334
24 Simcoe	2	1	1	400	150	95	80	80	65	8	52
25 Stormont	7	1	6	325	152	320	216	196	264	21	93
26 Waterloo	9	9	9	258	587	478	544	516	516	213	236
27 Welland	1	1	1	350	116	54	54	54	75	5	2
28 Wellington	8	3	5	328	207	583	537	561	561	184	380
29 Wentworth	1	1	1	225	24	22	20	20	24	24	11
30 York	2	2	2	220	166	159	159	166	166	1	65
31 Districts	4	2	2	400	275	300	185	194	246	22	70
Total	140	32	108	352	206	8497	6694	7170	7174	2877	3792
CITIES.											
1 Belleville	6	1	5	480	208	399	399	399	399	203	237
2 Brantford	4	1	3	500	160	297	272	217	272	217	187
3 Guelph	7	1	6	500	200	377	371	341	341	228	188
4 Hamilton	23	1	22	700	100	1436	1436	1340	1326	1284	959
5 Kingston	16	6	10	240	115	918	870	890	890	813	654
6 London	12	1	11	700	114	813	790	790	790	702	329
7 Ottawa	58	16	42	265	154	3357	1998	2568	2643	2032	2241
8 Stratford	6	1	5	500	160	328	328	328	328	303	248
9 St. Catharines	9	3	6	334	188	534	465	534	534	260	400
10 St. Thomas	4	4	4	200	200	279	279	279	279	279	213
11 Toronto	58	19	39	250	206	3163	2937	2158	3155	2428	2394
Total	203	50	153	296	160	11901	10145	9844	10957	8749	8050

Separate Schools of Ontario.

DIFFERENT BRANCHES OF INSTRUCTION.

MAPS AND PRIZES.

	Music.	Grammar and Composition.	English History.	Canadian History.	Object Lessons.	Temperance and Hygiene.	Domestic Economy (Girls).	Drill (with Calisthenics).	Book-keeping.	Algebra.	Mensuration.	Euclid.	Elementary Physics.	No. of Maps.	No. of Schools using Maps.	No. of Schools giving Prizes.
1	7	118	47	156	175	191	47							16	3	1
2		326	30	364	100	40				2	17	6		26	7	4
3	148	144	20	60	83	145	95							39	4	4
4	144	150	33	31	83		50	91		2		2		31	4	2
5		193	56	9	278				9	6	26			14	2	
6		14	2											1	1	1
7	95	242	70	97	290	122	15	118		6	22	6		40	9	2
8	79	145	51	66	60	93	49	101	14	8	19	8	8	28	4	2
9	186	255	91	50	92	91		61	17		5	1		30	6	2
10		50	10	10	59	73			8	8	8	8		8	2	
11	9		5	3	3											
12	11	32	21	9			1	1	10	5				11	2	
13	6	38	7	5	31			50	3	2	3	2		17	2	2
14	6	110	18	12	82			112	13					31	5	
15	156	137	51	15	105	1	1	89		3	1	3		6	1	1
16		23	13	25	25									28	5	2
17		96	20	24	7			33	3		2			9	1	
18		81	26	26	77	103					26	4		5	1	
19	40	21	4	4						1	1			18	3	1
20		60	20		105				1	2				4	1	1
21		27	4						2					36	8	1
22	4	241	13	63	102	50	7		3					25	4	2
23	135	365	51	52	287	75	66			32	18			7		1
24		54	17	24								3		22	4	2
25	34	104	20	16	33	21	61	80	11	6	3	5		28	6	4
26	403	223	8	51	254	173	180		3	2				11	1	
27	116	21	7	7	14				7	7				51	7	2
28	133	343	128	87	325	115	37	199	2	14	55	13	1	4	1	1
29		11	4	4	24									13	2	1
30		74	1		95			98						22	3	2
31		76		19	148	22	40									
	1712	3774	801	881	3182	936	684	1605	153	106	206	61	9	579	103	41
1	289	157	57	162							57			10	5	5
2	135	187	110		52	58	150	12	3	12	3			22	1	1
3	188	188	41		377	67	260	21	21	21	3			21	3	
4	1088	862	268	259	780	25	320	982	70	70	50	45		10	6	6
5	776	610	118	289	841	545	328	799	37	39	37	39		85	4	4
6	763	329	113	204			743	35	24	30	25			20	4	
7	2266	1943	180	623	2156	447	1034	1712	341	90	281			139	13	13
8	265	248	41	96	283	108	92	328						23	2	
9	534	400	139	110	534	534	223	534	69	25	69	25	4	40	5	5
10	279	183	22	28	165	50	149	279						9	1	1
11	2671	1975	375	1010	2148	1063	1099	2471	239	135	244	135	38	264	10	10
	9254	7082	1464	2676	7069	3201	3370	8258	824	407	821	278	126	643	54	45

VI.—TABLE F.—The Roman Catholic

TOWNS.	Number of Schools.	RECEIPTS.				EXPEN		
		Amount of Legislative Grant for Teachers' Salaries.	Amount received from School Rate on Superintendents.	Amount subscribed, and from other sources.	Total Amount Received.	Amount paid to Teachers.	Amount paid for Maps, Apparatus, Prizes and Libraries.	Amount paid for Sites and building School-Houses.
		\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1 Almonte	1	91 00	526 75	743 53	1361 28	572 77	15 00	15 95
2 Amherstburg	2	179 00	1141 89	865 59	2186 48	1338 75	6 00	525 20
3 Barrie	1	102 50	806 04	248 64	1157 18	925 00	28 60	
4 Berlin	2	99 50	1075 08	3509 21	4683 79	600 00	37 22	2739 59
5 Brockville	3	256 00	1654 60	1321 46	3232 06	1561 00	99 51	220 00
6 Chatham	1	166 50	1653 83	370 83	2191 16	1933 48	24 72	
7 Cobourg	1	167 00	800 00	35 00	1002 00	700 00		
8 Cornwall	3	322 50	2233 03	524 93	3080 46	1650 00		
9 Dundas	2	164 50	874 80		1039 30	850 00	5 75	16 00
10 Galt	1	75 50	216 00	149 00	440 50	190 00	13 90	100 95
11 Goderich	1	66 00	360 00	50 00	476 00	400 00		
12 Ingersoll	1	65 00	620 56	90 02	775 58	675 00		
13 Lindsay	2	276 00	1672 81	1148 38	3097 19	1593 75	3 40	
14 Newmarket	1	44 00	306 55	28 00	378 55	245 00		30 30
15 Niagara Falls	1	36 00	451 00	280 29	767 29	423 82		
16 Oakville	1	32 00	217 53	182 47	432 00	287 00	7 00	100 00
17 Orillia	1	91 50	837 21	68 15	996 86	580 00		124 87
18 Oshawa	1	82 50	482 77	72 43	637 70	400 00	5 60	
19 Owen Sound	1	35 50	452 70	97 39	585 59	385 00		
20 Paris	1	59 50	392 74	364 52	816 76	400 00		
21 Pembroke	1	171 50	2761 00	1054 42	3986 92	1645 00	32 42	1487 21
22 Perth	1	96 50	575 00	36 00	707 50	600 00		6 00
23 Peterborough	3	362 00	2674 81	787 96	3824 77	2276 50	104 26	58 38
24 Picton	1	51 50	653 78		705 28	550 00		
25 Port Arthur	1	183 05	910 61	1100 53	2194 19	750 00	38 69	758 00
26 Prescott	1	138 00	741 72	491 60	1371 32	1073 00		
27 Rat Portage	1	94 50	150 00		244 50	230 00		
28 Sarnia	2	115 00	733 26	297 00	1145 26	750 00	11 00	
29 St. Mary's	1	49 50	361 59	24 81	435 90	366 66		6 00
30 Thorold	2	103 50	528 46	536 04	1168 00	1000 00		
31 Trenton	1	144 50	1875 00	382 35	2401 85	1250 65	20 13	204 44
32 Whitby	1	49 50	300 38	299 15	649 03	475 00		
Total	44	3971 05	29041 50	15159 70	48172 25	26677 38	453 20	6392 89
TOTALS.								
1 Counties, etc.	117	4022 25	35443 40	12982 31	52447 96	31816 38	440 79	7945 89
2 Cities	57	7690 50	55126 73	54659 37	117476 60	41859 25	1322 56	46353 21
3 Towns	44	3971 05	29041 50	15159 70	48172 25	26677 38	453 20	6392 89
4 GRAND TOTAL, 1885..	218	15683 80	119611 63	82801 38	218096 81	100353 01	2216 55	60691 99
5 Do. 1884..	207	14744 79	113221 73	62487 71	190454 23	95616 15	2100 81	36720 27
6 INCREASE	11	939 01	6389 90	20313 67	27642 58	4736 86	115 74	23971 72
7 DECREASE								

Separate Schools of Ontario.

DITURE.			AVERAGE COST PER PUPIL.		PUPILS.				
Amount paid for other purposes.	Total Amount Expended.	Balances.	On Total Attendance.	On Average Attendance.	Number of Pupils.	Boys.	Girls.	Average Attendance.	Percentage of Average to Total Attendance.
\$ c.	\$ c.	\$ c.							
1 523 60	1132 32	228 96	7 00	11 92	162	88	74	95	59
2 310 33	2180 28	6 20	6 85	11 53	318	169	149	189	60
3 164 28	1117 88	39 30	7 00	10 55	160	89	71	106	66
4 810 37	4187 18	496 61	23 26	49 26	180	83	97	85	47
5 1281 51	3162 02	70 04	7 37	12 80	429	178	251	247	58
6 200 04	2158 24	32 92	6 60	11 42	327	159	168	189	58
7 302 00	1002 00		4 50	6 51	223	105	118	154	69
8 1108 22	2758 22	322 24	3 88	7 51	711	376	335	367	52
9 121 69	993 44	45 86	3 40	5 98	293	185	108	166	57
10 30 85	335 70	104 80	3 16	4 19	106	41	65	80	76
11 60 00	460 00	16 00	3 83	6 76	120	54	66	68	57
12 79 81	754 81	20 77	7 00	11 26	108	57	51	67	62
13 1439 10	3036 25	60 94	5 62	9 17	540	203	337	331	61
14 41 05	316 35	62 20	3 90	7 35	81	46	35	43	53
15 226 17	649 99	117 30	4 71	7 92	138	64	74	82	60
16 38 00	432 00		6 55	11 08	66	32	34	39	60
17 221 95	926 82	70 04	5 58	8 20	166	81	85	113	68
18 149 55	555 15	82 55	4 37	6 53	127	59	68	85	67
19 187 94	572 94	12 65	7 07	15 48	81	35	46	37	47
20 138 31	538 31	278 45	5 48	7 57	98	55	43	71	72
21 804 95	3969 58	17 34	9 52	15 51	417	241	176	256	61
22 61 50	667 50	40 00	6 67	7 94	130	61	69	84	65
23 1255 61	3694 75	130 02	5 19	8 27	711	328	383	447	63
24 155 28	705 28		7 93	13 07	89	49	40	54	60
25 647 50	2194 19		8 81	19 41	249	128	121	113	49
26 251 15	1324 15	47 17	6 42	10 10	206	114	92	131	64
27 14 50	244 50		4 06	7 62	60	28	32	35	58
28 178 65	939 65	205 61	4 00	9 70	234	131	103	97	42
29 21 53	394 19	41 71	4 38	7 43	90	39	51	53	58
30 168 00	1168 00		6 42	10 71	182	74	108	109	60
31 858 23	2333 45	68 40	7 70	13 41	303	158	145	174	57
32 104 85	579 85	69 18	6 67	12 35	87	47	40	47	54
11961 52	45484 99	2687 26	6 32	10 80	7192	3557	3635	4214	59
1 7745 04	47948 10	4499 86	5 64	11 70	8497	4390	4107	4097	48
2 21562 66	111097 68	6378 92	9 33	16 01	11901	6009	5892	6937	58
3 11961 52	45484 99	2687 26	6 32	10 80	7192	3557	3635	4214	59
4 41269 22	204530 77	13566 04	\$ c. 7 41	\$ c. 13 41	27590	13956	13634	15248	55
5 42039 88	176477 11	13977 12	6 42	12 12	27463	13703	13760	14560	53
6	28053 66	.....	0 99	1 29	127	253	.....	688	2
7 777 66	.....	411 08	.....	.....	.....	.....	126	.....	.....

VI.—TABLE F.—The Roman Catholic

TOWNS.	TEACHERS.					NUMBER IN THE					
	Number of Teachers.	Male.	Female.	Average Salary—Male.	Average Salary—Female.	Reading.	Spelling.	Writing.	Arithmetic.	Drawing.	Geography.
				\$	\$						
1 Almonte	2	1	1	425	200	162	162	162	162	125	116
2 Amherstburg	6	1	5	488	170	318	275	280	292	.....	107
3 Barrie	3	1	2	425	200	160	78	78	160	78	78
4 Berlin	3	.....	3	.....	200	180	127	179	144	106	73
5 Brockville	7	1	6	450	200	429	305	335	323	240	210
6 Chatham	5	1	4	700	300	327	327	327	327	327	208
7 Cobourg	3	.....	3	.....	234	223	223	167	223	132	223
8 Cornwall	7	1	6	600	200	711	665	625	711	711	365
9 Dundas	4	1	3	500	134	293	280	210	280	130	129
10 Galt	1	.....	1	.....	325	106	80	85	80	45	42
11 Goderich	2	.....	2	.....	200	120	120	120	120	120	86
12 Ingersoll	2	.....	2	.....	338	108	98	108	108	55	55
13 Lindsay	10	1	9	750	220	540	540	540	540	504	416
14 Newmarket	1	.....	1	.....	245	81	81	61	81	42	42
15 Niagara Falls	3	.....	3	.....	168	138	40	50	35	70	40
16 Oakville	2	.....	2	.....	150	66	66	66	66	50	41
17 Orillia	2	.....	2	.....	290	166	166	166	166	89	132
18 Oshawa	2	.....	2	.....	200	127	101	85	101	75	71
19 Owen Sound	1	.....	1	.....	300	81	81	81	81	22	40
20 Paris	2	.....	2	.....	200	98	98	98	98	85	85
21 Pembroke	6	2	4	425	231	417	356	356	356	123	179
22 Perth	2	1	1	400	200	130	130	130	130	57	85
23 Peterborough	11	1	10	650	236	711	711	668	668	668	478
24 Picton	2	.....	2	.....	275	89	76	76	76	50	36
25 Port Arthur	3	.....	3	.....	250	249	249	249	249	249	119
26 Prescott	4	1	3	500	190	206	206	206	206	206	119
27 Rat Portage	1	.....	1	.....	350	60	40	31	40	.....	26
28 Sarnia	3	1	2	450	150	234	199	199	234	45	112
29 St. Mary's	1	.....	1	.....	350	90	90	90	90	90	59
30 Thorold	4	1	3	500	167	182	182	162	172	129	150
31 Trenton	4	1	3	500	190	303	303	303	303	303	303
32 Whitby	1	.....	1	.....	300	87	63	70	70	23	55
Total	110	16	94	511	219	7192	6518	6363	6692	4949	4280
TOTALS.											
1 Counties, etc	140	32	108	352	206	8497	6694	7170	7174	2877	3792
2 Cities	203	50	153	296	160	11901	10145	9844	10957	8749	8050
3 Towns	110	16	94	511	219	7192	6518	6363	6692	4949	4280
4 GRAND TOTAL, 1885..	453	98	355	358	190	27590	23357	23377	24823	16575	16122
5 Do. 1884..	427	96	332	351	188	27463	23125	23139	23705	12220	15108
6 INCREASE	26	3	23	7	2	127	232	238	1118	4355	1014
7 DECREASE .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Separate Schools of Ontario.

DIFFERENT BRANCHES OF INSTRUCTION.

MAPS AND PRIZES.

	Music.	Grammar and Composition.	English History.	Canadian History.	Object Lessons.	Temperance and Hygiene	Domestic Economy (Girls).	Drill (with Calisthenics).	Book-keeping.	Algebra.	Mensuration.	Euclid.	Elementary Physics.	No. of Maps.	No. of Schools using Maps.	No. of Schools giving Prizes.
1	90	13	10	102										5	1	1
2	110	9	138				83	226	14	9	9	4		18	2	2
3	78	20	46	27			32	78	20					10	1	1
4	179	49	11	180			97							11	2	2
5	40	26	35	205	110	157	220	10	8	8	8			17	3	
6	327	155	66	327	329	112	327							9	1	
7	140	40	132	56			223	40	40	40	40	6		9	1	1
8	283	365	86	154	530		433							10	3	
9	79	130	129	84	128	65	230	12						14	2	2
10	75	42	12	20	39	12	50	3						5	1	1
11	21	49	99	49	66	120								9	1	
12	108	55	32	32	80						8			9	1	
13	337	434	162	95	120			389	113	59	86	59	49	75	2	
14	42	3	3											7	1	1
15	30	9							6					10	1	1
16	66	36	24	66		20	66							5	1	1
17	36	84	36	48							20			8	1	
18	127	61	21	30	76			127						13	1	
19	40	8	8											4	1	
20	98	49	38	60		18	98	38			6			8	1	1
21		153	88	238			241							29	1	1
22		85	57	130										8	1	
23	458	460	67	533	501	458	711	7	7	7	7	7	7	36	3	3
24	36	16	6											7	1	1
25	235	119	17	130	32	62	249	5	5					3	1	
26	6	119	44					5		44				18	1	
27		22	27	7				10						2	1	1
28		83	8	66		65								13	2	2
29	90	38	20	90										9	1	
30	142	98	31	80		92	142	32	19	20	20			18	2	
31	303	194												6	1	1
32	55	18												7	1	1
	3124	3662	1306	1210	3515	1104	1261	3810	815	147	246	138	62	412	44	24
1	1712	3774	801	881	3182	936	684	1605	153	106	206	61	9	579	103	41
2	9254	7082	1464	2676	7069	3201	3370	8258	824	407	821	278	126	643	54	45
3	3124	3662	1306	1210	3515	1104	1261	3810	815	147	246	138	62	412	44	24
4	14090	14518	3571	4767	13766	5241	5315	13673	1292	660	1273	477	197	1634	201	110
5	12328	13637	7996		13797	5082	5344	9106		686			186	1640	193	111
6	1762	881	342			159		4567					11		8	
7					31		29			26				6		1

VII.—TABLE G.—The

HIGH SCHOOLS.	RECEIPTS.					EXPENDITURE.				
	Legislative Grant for Teachers' salaries.	Municipal Grants.	Fees.	Balances and other sources.	Total Receipts.	Teachers' Salaries.	Building, Rent, and Repairs.	Maps, Apparatus, Prizes and Libraries.	Fuel, Books and Contingencies.	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1 Alexandria.....	500 00	855 07		413 92	1768 99	1285 00	50 40			184 08
2 Almonte.....	505 00	2305 38		519 00	3329 38	2083 30	600 00	30 00		8 75
3 Arnprior.....	500 00	1935 26		217 37	2652 63	1500 00	56 49			225 48
4 Aylmer.....	557 66	1170 00	69 00	1295 89	3092 55	2097 28		36 50		959 77
5 Barrie, C. I.....	1456 84	2491 84	578 75	1146 77	5674 20	3882 25	63 76			1728 19
6 Beamsville.....	500 00	900 00		320 67	1720 67	1225 00	0 50	55 84		439 33
7 Belleville.....	962 94	2422 01	96 00		3480 95	3316 59	164 36			
8 Berlin.....	935 91	2602 57	750 25	937 35	5226 08	3900 00	578 78	139 40		452 03
9 Bowmanville.....	923 00	3520 61		269 10	4712 71	3200 00				543 32
10 Bradford.....	500 00	1100 00	315 00	107 67	2022 67	1615 00	65 29			125 43
11 Brampton.....	1062 79	3354 38	671 25	261 89	5350 31	3612 50	192 43			488 58
12 Brantford, C. I.....	1775 16	6149 84	2313 00	1291 94	11529 94	6970 93	281 88	33 53		4243 60
13 Brighton.....	500 00	1500 00		710 11	2710 11	1440 24	374 88			257 83
14 Brockville.....	763 25	1900 00	159 00	791 45	3613 70	2800 00	7 87			420 85
15 Caledonia.....	563 57	1313 57	637 00	94 07	2608 21	2159 96	125 44			295 30
16 Campbellford.....	500 00	500 00	165 00	661 14	1826 14	1650 00				176 14
17 Carleton Place.....	500 00	1700 00		506 09	2706 09	1600 00	128 56	49 95		693 46
18 Cayuga.....	500 00	1080 00		414 47	1994 47	1380 00	64 35	35 00		135 13
19 Chatham.....	1109 38	3000 00	861 00	329 49	5299 87	3966 96	127 92	180 64		834 16
20 Clinton.....	1095 88	2495 88	670 00	1413 63	5675 39	3700 00	127 32	10 00		391 12
21 Colbourg, C. I.....	1268 11	3700 00	1026 50	11688 32	17682 93	3770 82		29 95		13882 16
22 Colborne.....	500 00	950 00	6 00	962 04	2418 04	1087 44	6 25	25 00		951 95
23 Collingwood, C. I.....	1685 00	3885 00	845 65	7037 19	13452 84	5049 80	228 23	60 00		8114 81
24 Cornwall.....	684 19	3101 93	44 00		3830 12	2299 97	41 88			716 04
25 Dundas.....	505 00	1556 00	222 75	3290 23	5573 98	1700 00	2977 75			437 23
26 Dunnville.....	500 00	1100 00		3655 34	5255 34	1366 67	3590 16			114 88
27 Elora.....	500 00	1000 00		1431 08	2931 08	1300 00				198 37
28 Essex Centre.....		300 00			300 00	150 00	24 00			
29 Farmersville.....	562 08	1572 08	77 00	555 89	2767 05	2000 00	24 55			566 06
30 Fergus.....	500 00	1133 00	39 00	33 64	1705 64	1258 33		6 90		342 75
31 Galt, C. I.....	1729 67	3529 67	1532 08	1624 57	8415 99	5640 00	244 80	164 67		2364 41
32 Gananoque.....	500 00	1045 23		197 08	1742 31	1600 00				32 17
33 Goderich.....	1142 94	2662 94		467 31	4273 19	3380 20	41 70			610 88
34 Grimsby.....	500 00	1010 75	234 50	196 78	1942 03	1417 50	232 96			75 87
35 Guelph.....	982 92	3110 89	428 50	761 37	5283 68	3616 65	336 87	194 56		966 41
36 Hamilton, C. I.....	2255 00	11360 39	1815 75	150 00	15581 14	10968 24	4249 34			363 56
37 Harriston.....	650 00	1550 00	532 87	342 17	3075 04	2445 83	38 10	19 20		473 24
38 Hawkesbury.....	500 00	1100 00	23 00	56 99	1679 99	1416 67				237 27
39 Ingersoll.....	666 50	3431 73	63 00	7 28	4168 51	2873 99	714 70	151 05		428 77
40 Iroquois.....	500 00	950 00	92 00	195 78	1737 78	1300 00	13 53			180 79
41 Kemptville.....	540 00	891 05	122 00	52 00	1605 05	1350 00	34 25	111 05		109 75

High Schools.

EXPENDITURE.		No. OF PUPILS ATTENDING.			Average attendance.	Percentage of average attendance to total attendance.	CHARGES PER TERM.	COST PER PUPIL.	
Total Expenditure.	Balances.	Boys.	Girls.	Total.				On Total Attendance.	On Average Attendance.
\$ c.	\$ c.							\$ c.	\$ c.
1	1519 48	249 51	20 23	43	24	56	Free	35 35	63 33
2	2722 05	807 33	66 73	139	90	65	Free	19 58	30 25
3	1782 97	869 66	24 32	56	32	58	Free	31 84	55 72
4	3092 55		66 72	138	80	57	Free	22 40	38 65
5	5674 20		86 73	159	91	57	\$3 per annum	35 68	62 24
6	1720 67		22 13	35	20	58	Free	49 14	86 00
7	3480 95		126 148	274	149	55	Free res.; \$6, \$4 non-res.	12 70	23 36
8	5070 21	135 87	74 32	106	61	60	\$7 1st $\frac{1}{2}$ year; \$5 2nd $\frac{1}{2}$ year.	47 83	83 12
9	3743 32	969 39	61 41	102	53	52	Free	36 70	70 62
10	1803 72	216 95	46 29	75	39	52	\$6 per annum	24 08	46 31
11	4293 51	1056 80	98 99	197	110	56	\$5 per annum	21 79	39 04
12	11529 94		138 152	290	174	60	Res. \$10; non-res. \$16.	39 76	66 27
13	2072 95	637 16	43 21	64	34	53	Free	32 39	60 97
14	3228 72	384 98	77 74	151	82	54	Free res.; \$1 per mo. non-res.	21 38	39 38
15	2580 70	27 51	49 54	103	89	86	\$2.50 and \$2.	25 05	29 00
16	1826 14		38 42	80	47	59	\$2 res. per an.; \$4 non-res p. an	22 82	38 85
17	2471 97	234 12	40 35	75	53	71	Free	32 96	46 64
18	1615 48	378 99	18 22	40	23	58	Free	40 37	70 22
19	5109 68	190 19	88 104	192	119	62	\$2, \$2, \$3	2; 62	42 94
20	4228 44	1446 95	71 49	120	71	59	\$3, \$3, \$4, sen.; \$2, \$2, \$3 jun.	35 23	59 55
21	17682 93		80 48	128	76	59	\$12 res. p. an.; \$14 non-res. p. an	13 81	23 26
22	2070 64	347 40	26 22	48	27	56	Free	43 12	76 66
23	13452 84		175 115	290	139	48	\$5.25, \$3.25.	46 39	96 78
24	3067 89	772 23	39 59	98	52	53	Free	31 22	58 81
25	5114 98	459 00	35 40	75	40	53	50 cts. per month	68 20	127 88
26	5071 71	183 63	24 31	55	42	77	Free	92 22	120 76
27	1498 37	1432 71	24 31	55	43	78	Free	27 24	34 84
28	174 00	126 00	6 13	19	15	80	Free	9 16	11 60
29	2590 61	176 44	66 54	120	60	50	Free	21 59	43 18
30	1607 98	97 66	57 58	115	67	58	Free	14 00	24 01
31	8413 88	2 11	99 65	164	101	61	\$14 per annum	51 31	83 31
32	1632 17	110 14	44 30	74	44	60	Free	22 05	37 09
33	4032 78	240 41	86 90	176	101	58	Free	22 91	40 60
34	1726 33	215 70	30 31	61	38	62	\$7 per annum	28 30	45 42
35	5114 49	169 19	139 107	246	145	59	Free res.; \$1.50 pr. m. non-res	20 80	35 27
36	15581 14		254 264	518	314	61	Free res.; \$6, \$10 non-res	30 08	49 62
37	2976 37	98 67	78 59	137	70	51	\$2, \$2, \$2.50	21 72	42 51
38	1653 94	26 06	19 16	35	25	71	Free	47 26	66 16
39	4168 51		75 95	170	103	61	\$2	24 52	40 46
40	1494 32	243 46	33 46	79	43	55	\$1	18 91	34 74
41	1805 05		55 46	101	57	57	\$4 per mo. non-res	15 89	28 16

VII.—TABLE G.—The

HIGH SCHOOLS.	RECEIPTS.					EXPENDITURE.				
	Legislative Grant for Teachers' salaries.	Municipal Grants.	Fees.	Balances and other sources.	Total Receipts.	Teachers' Salaries.	Building, Rent and Repairs.	Maps, Apparatus, Prizes and Libraries.	Fuel, Books and Contingencies.	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
42 Kincardine.....	603 23	2203 23	.....	173 31	2979 77	2384 82	250 14	.....	311 48	
43 Kingston, C. I.	1584 38	2500 00	1643 15	386 73	6114 26	4207 62	131 50	447 06	1077 56	
44 Lindsay	1062 50	2983 94	.....	260 00	4306 44	3633 33	54 55	.....	618 56	
45 Listowel	532 50	1431 85	414 50	50 65	2429 50	1800 24	244 27	.....	258 12	
46 London, C. I.	1775 00	4680 00	654 00	3745 46	10854 46	7068 64	317 15	271 29	539 55	
47 Markham	500 00	700 00	283 05	663 28	2146 33	1649 71	86 63	.....	185 38	
48 Mitchell	500 00	1450 00	40 00	30 27	2020 27	1600 00	34 62	.....	263 37	
49 Morrisburg	505 21	1661 82	.....	.....	2170 03	2000 00	.....	.....	170 03	
50 Mount Forest	1027 91	2027 91	673 45	182 13	3911 40	3333 65	81 89	39 10	403 95	
51 Napanee	923 57	2698 57	2 00	9 18	3633 32	2900 26	84 25	24 75	617 06	
52 Newburgh	500 00	769 83	24 00	31 88	1325 71	1163 69	9 40	.....	152 62	
53 Newcastle	500 00	1100 00	.....	244 17	1844 17	1150 00	62 10	.....	220 40	
54 Newmarket	523 63	700 00	816 50	441 07	2481 20	2139 00	62 75	.....	279 45	
55 Niagara	500 00	1000 00	.....	360 95	1860 95	1625 00	11 17	14 35	60 91	
56 Niagara Falls, S.	500 00	989 37	.....	296 55	1785 92	1325 00	144 22	34 48	256 50	
57 Norwood	591 67	1572 79	.....	.....	2164 46	1619 50	238 24	40 97	265 75	
58 Oakville	532 50	1543 48	47 75	40 18	2163 91	1800 00	35 77	16 66	311 48	
59 Oakwood	500 00	900 00	32 00	142 48	1574 48	1325 00	14 63	.....	123 68	
60 Omemee	500 00	2155 00	.....	634 11	3389 11	1250 00	1275 00	.....	714 65	
61 Orangeville	623 19	6918 00	444 50	371 12	8356 81	2500 00	5037 93	300 00	515 70	
62 Orillia	631 63	1681 63	180 00	600 12	3093 38	2508 17	78 49	.....	506 72	
63 Oshawa	788 67	2529 33	.....	.....	3328 00	2766 67	150 27	.....	411 06	
64 Ottawa, C. I.	1955 00	5703 95	3082 70	880 11	11621 76	7365 89	216 13	250 53	1763 98	
65 Owen Sound	1109 38	4674 77	83 00	30 00	5897 15	4367 50	291 61	377 74	860 30	
66 Paris	510 21	1710 21	.....	688 06	2908 48	1750 00	2 50	72 87	355 10	
67 Parkhill	500 00	1000 00	52 00	150 92	1702 92	1270 00	75 00	94 69	93 46	
68 Pembroke	803 70	2166 89	.....	7247 77	20518 36	2450 00	5969 03	.....	266 66	
69 Perth, C. I.	1112 79	3041 94	492 00	1907 30	6554 02	3452 67	2784 23	.....	.....
70 Peterboro', C. I.	1533 54	4450 00	709 75	1332 31	8025 60	4437 66	700 00	.....	2698 40	
71 Petrolia	527 82	2517 82	.....	866 13	4111 77	2367 74	580 11	79 50	447 30	
72 Picton	825 42	2525 42	75 00	2312 36	5738 20	2743 33	215 76	266 82	2186 18	
73 Port Dover	500 00	500 00	27 09	640 26	1667 26	1500 00	37 71	.....	129 55	
74 Port Hope	896 91	2350 00	1032 75	263 52	4543 18	3126 66	1010 47	.....	358 32	
75 Port Perry	934 25	2359 25	40 00	14 09	3348 49	2868 50	199 20	.....	250 00	
76 Port Rowan	500 00	500 00	23 00	487 47	1510 47	1358 77	.....	.....	151 70	
77 Prescott	500 00	1288 35	64 40	49 33	1902 08	1516 65	47 03	71 92	218 51	
78 Renfrew	500 00	1748 58	.....	380 65	2629 23	1750 00	81 93	12 03	232 93	
79 Richmond Hill	505 38	1000 00	403 10	278 35	2186 83	1848 40	132 11	.....	175 78	
80 Ridgetown	750 60	9264 90	92 08	4951 25	15058 83	3403 10	8638 46	.....	2670 57	
81 Sarnia	832 16	2821 91	.....	625 31	4279 38	3129 17	370 41	.....	779 80	
82 Seaforth	815 05	2229 37	665 50	81 00	3860 92	3034 17	210 15	75 63	371 34	
83 Simcoe	740 00	1913 76	.....	.....	2654 66	2338 00	10 55	.....	306 11	
84 Smiths' Falls	500 00	2380 23	24 00	.....	2904 23	1600 00	896 85	20 05	387 33	

High Schools.

EXPENDITURE.		NO. OF PUPILS ATTENDING.			Average Attendance.	Percentage of average attendance to total attendance.	CHARGES PER TERM.	COST PER PUPIL.	
Total Expenditure.	Balances.	Boys.	Girls.	Total.				On Total Attendance.	On Average Attendance.
\$ c.	\$ c.							\$ c.	\$ c.
42	2946 44	33 33	63 48	111 65	59	Free	26 54	45 32	
43	5863 74	250 52	115 55	170 79	47	\$5.25	34 49	74 23	
44	4306 44		71 75	146 82	56	Free	29 49	52 51	
45	2302 63	126 87	75 55	130 57	44	\$1 per month	17 71	40 40	
46	8196 63	2657 83	171 198	369 204	55	\$3 non-res.	22 21	40 17	
47	1921 72	224 61	57 27	84 50	60	\$3	22 88	38 44	
48	1897 99	122 28	64 49	113 65	58	Free	16 88	29 29	
49	2170 03		71 70	141 85	60	Free	15 39	25 53	
50	3858 59	52 81	50 56	106 73	69	\$2	36 40	52 85	
51	3626 31	7 01	64 92	156 94	60	Free	23 24	38 57	
52	1325 71		20 30	50 41	81	Free	26 52	32 34	
53	1432 50	411 67	30 25	55 33	60	Free	26 04	43 40	
54	2481 20		71 68	139 82	59	\$3	17 85	30 25	
55	1711 43	149 52	19 18	37 17	47	Free	46 24	100 65	
56	1760 20	25 72	35 47	82 43	52	Free	21 46	40 93	
57	2164 46		27 33	60 29	48	Free	36 03	74 65	
58	2163 91		20 40	60 30	50	\$1, \$2	36 03	72 06	
59	1463 31	111 17	40 22	62 35	56	Free	23 60	41 80	
60	3239 65	49 46	22 26	48 25	52	Free	67 50	129 60	
61	8353 63	3 18	68 55	123 70	57	\$3, \$2	67 92	119 34	
62	3093 38		59 54	113 67	59	25 cts. per month	27 37	46 16	
63	3328 00		81 83	164 103	63	Free	20 29	32 31	
64	9596 53	2025 23	194 74	268 155	58	\$15 per an res. ; \$27 do non-res	35 83	61 91	
65	5897 15		133 156	289 135	47	Free	20 45	43 68	
66	2180 47	728 01	18 43	61 39	64	Free	35 74	55 90	
67	1533 15	169 77	44 43	87 52	60	\$1 per half-year	17 62	29 48	
68	8885 69	1832 67	52 45	97 71	73	Free	89 55	122 34	
69	6236 90	317 12	74 100	174 100	57	\$4	35 84	62 37	
70	7836 06	189 54	111 91	202 104	52	50 cts. res.; \$1 non-res.	33 84	75 34	
71	3474 65	637 12	63 71	134 78	58	Free	25 92	44 54	
72	5412 09	326 11	65 95	160 89	56	Free	33 82	60 81	
73	1667 26		36 29	65 38	58	Free	25 65	43 87	
74	4495 45	47 73	87 68	155 103	67	\$9 res.; \$11 non-res.	29 00	43 62	
75	3317 70	30 79	64 50	114 73	61	Free	29 20	45 45	
76	1510 47		20 25	45 26	58	Free	33 55	58 08	
77	1854 11	47 97	40 45	85 51	60	Free res.; \$1 per mo. non-res.	21 81	36 36	
78	2076 89	552 34	41 60	101 68	67	Free	20 56	30 44	
79	2156 29	30 54	35 66	101 56	55	\$2.50	21 34	38 49	
80	14732 13	326 70	82 120	202 115	57	Free	72 93	128 10	
81	4279 38		80 121	201 116	58	Free	21 29	36 90	
82	3691 29	169 63	67 65	132 80	61	\$2.66, \$3.33, \$4	28 00	46 15	
83	2654 66		59 67	126 72	57	Free	21 07	36 87	
84	2904 23		34 34	68 47	69	Free	42 71	61 78	

VII.—TABLE G.—The

HIGH SCHOOLS.	RECEIPTS.					EXPENDITURE.				
	Legislative Grant for Teachers' salaries.	Municipal Grants.	Fees.	Balances and other sources.	Total Receipts.	Teachers' Salaries.	Building, Rent and Repairs.	Maps, Apparatus, Prizes and Libraries.	Fuel, Books and Contingencies.	
	\$ c.	\$ c.	\$ c.	\$ l.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
85 Smithville	500 00	915 00		416 34	1831 34	1332 16	9 13	11 00	140 48	
86 Stratford, C. I. .	1820 63	2912 50	400 00	3137 14	8270 27	5900 50	561 96	188 62	763 17	
87 Strathroy, C. I. .	1333 29	2833 29	1353 00	823 31	6342 89	4346 66	822 46	328 53	548 59	
88 Streetsville	500 00	1300 00		106 93	1906 93	1300 00	80 10		160 06	
89 St. Catharines, C. I.	1723 54	5269 75	724 50	136 50	7854 29	6110 00	750 29		240 00	
90 St. Mary's, C. I. .	1297 50	2550 00	811 50	68 33	4727 33	3979 99	73 05		595 82	
91 St. Thomas, C. I. .	1775 00	5398 58	25 00	150 00	7348 58	6105 00	249 97		993 61	
92 Sydenham	532 50	1200 00	48 00	282 47	2062 97	1625 00	151 42		286 55	
93 Thorold	562 08	1062 08		979 34	2603 50	1705 00	78 52		176 30	
94 Toronto, C. I. .	1775 00	5393 00	7394 10	336 17	14898 27	12240 34	495 19	313 70	1322 25	
95 Trenton	500 00	1814 75		348 84	2663 59	2009 98	141 06		490 87	
96 Uxbridge	883 07	2133 07	274 75	41 38	3332 27	3115 00		18 15	191 98	
97 Vankleekhill	500 00	1008 85		539 48	2048 33	1421 90	76 49	7 14	50 25	
98 Vienna	500 00	1059 41			1559 41	1374 61			184 80	
99 Walkerton	1052 66	2202 66	675 50	3459 47	7390 29	3570 00	161 94	59 15	3509 43	
100 Wardeville	500 00	823 45		1405 58	2729 03	1270 00		62 25	935 81	
101 Waterdown	546 25	796 25	331 09	159 69	1833 28	1685 00		11 37	136 91	
102 Welland	543 60	2043 60		302 64	2889 84	2250 00	173 59		466 25	
103 Weston	500 00	809 00	344 00	283 95	1936 95	1600 00	137 84	16 25	110 73	
104 Whitby, C. I. .	1494 19	3310 79	690 50		5495 48	4943 00	70 06		482 42	
105 Williamstown	500 00	750 00		494 35	1744 35	1185 57	5 30	90 00	198 23	
106 Windsor	843 42	2086 83	60 40		2990 65	2503 65		47 16	439 84	
107 Woodstock	1045 26	2945 26	389 00	226 93	4606 45	3710 00	123 27	151 22	547 95	
1 Total, 1885	86169 48	242782 28	40032 37	89956 65	458940 78	294077 99	50865 05	5148 22	79670 61	
2 Total, 1884	85206 38	220668 66	34287 66	67815 17	407977 87	282775 95	34013 21	1873 82	66763 45	
3 Increase	963 10	22113 62	5744 71	22141 48	50962 91	11302 04	16851 84	3274 40	12907 16	
4 Decrease										
Percentage of total ..	19	52	9	20		68	12	1	19	

High Schools.

EXPENDITURE.		No. OF PUPILS ATTENDING.			Average Attendance.	Percentage of average attendance to total attendance.	CHARGES PER TERM.	COST PER PUPIL.	
Total Expenditure.	Balance.	Boys.	Girls.	Total.				On Total Attendance.	On Average Attendance.
\$ c.	\$ c.							\$ c.	\$ c.
85 1442 77	388 57	32	36	68	43	63	Free	21 21	33 53
86 7414 25	856 02	135	160	295	165	56	\$2, \$1., res.; \$6, \$4, non-res..	25 13	44 93
87 6045 24	297 65	140	130	270	159	59	\$8 per an., sen.; \$5 per an., jun	22 39	38 03
88 1540 16	366 77	39	29	68	37	55	Free; \$16 per an	22 65	41 61
89 7100 29	754 00	127	124	251	145	58	Free	28 28	48 96
90 4648 86	78 47	92	100	192	131	68	Free, res.; \$6, \$4, non-res....	24 20	35 48
91 7348 58	.....	171	170	341	198	58	Free	21 55	37 11
92 2062 97	.....	36	40	76	45	59	Free	27 14	45 84
93 1959 82	643 68	28	40	68	46	68	Free	28 82	42 60
94 14371 48	526 79	365	257	622	303	49	\$5, \$4.38, \$4	23 11	47 13
95 2641 91	21 68	44	39	83	42	51	Free	31 83	62 90
96 3325 13	7 14	59	42	101	58	57	\$1.50.....	32 92	57 33
97 1555 78	492 55	35	50	85	48	56	Free	18 31	32 42
98 1559 41	.....	21	27	48	26	54	Free	32 50	60 00
99 7300 52	89 77	110	87	197	110	56	\$3, \$2	37 05	66 36
100 2268 06	460 97	38	31	69	31	45	Free	32 87	73 16
101 1833 28	.....	60	33	93	50	54	\$2, \$2.50	19 72	36 68
102 2889 84	.....	57	60	117	66	57	Free	24 70	43 79
103 1864 82	72 13	38	30	68	40	59	\$2	27 41	46 60
104 5495 48	.....	93	84	177	106	60	\$2	31 05	51 85
105 1479 10	265 25	30	43	73	36	49	Free	20 26	41 08
106 2990 65	.....	51	85	136	83	61	Free	22 00	36 02
107 4532 44	74 01	71	92	163	99	61	\$1	27 80	45 78
1 429761 87	29178 91	7259	6991	14250	8207	C.I. 56	{ 64 free..... } { 43 fee	C.I. . 33 38	59 51
						H.S. 58		H.S. . 28 57	48 98
						Av. 58		Av. 30 16	52 36
2 385426 43	22551 44	6386	6351	12737	7302	C.I. 55	{ 67 free..... } { 39 fee	C.I. . 30 98	56 79
						H.S. 59		H.S. . 29 89	50 87
						Av. 57		Av. 30 26	52 78
3 44335 44	6627 47	873	640	1513	905	{ C.I. 1 Av. 1 }	{ 4 free..... }	C.I. . 2 40	2 72
4 .....	.....	.....	.....	.....	.....	H.S. 1	{ 3 free..... }	H.S. . 1 32	1 89
		58	42	.....	.....			Av. 0 10	0 42

VIII.—TABLE H.—The

NUMBER OF PUPILS IN THE VARIOUS

HIGH SCHOOLS.	SUBJECTS.											
	In Reading.	In Orthography and Orthoëpy.	In English Grammar.	In Composition.	In Literature.	In History.	In Geography.	In Arithmetic and Mensuration.	In Algebra.	In Euclid.	In Trigonometry.	In Physics.
1 Alexandria	43	43	43	43	26	43	43	43	43	42	.....	26
2 Almonte	139	139	139	139	139	139	139	139	122	122	.....	31
3 Arnprior	56	56	56	56	31	56	56	56	56	56	.....	31
4 Aylmer	138	138	138	138	138	138	138	138	138	138	4	102
5 Barrie C. I.	153	159	159	159	159	159	159	159	151	151	10	79
6 Beamsville	28	30	32	32	32	30	28	28	28	31	1	20
7 Belleville	267	267	267	267	270	265	265	272	262	240	6	114
8 Berlin	103	102	105	106	106	105	103	105	96	76	4	38
9 Bowmanville	102	102	102	102	102	102	102	102	100	75	8	20
10 Bradford	75	75	75	75	75	75	75	75	75	75	3	56
11 Brampton	197	193	197	197	197	197	197	197	193	193	5	197
12 Brantford C. I.	290	290	290	290	290	290	290	290	290	290	10	110
13 Brighton	49	47	50	50	50	50	50	50	50	50	.....	16
14 Brockville	151	144	151	151	151	151	151	144	151	143	5	45
15 Caledonia	103	103	103	103	103	103	103	103	103	103	3	70
16 Campbellford	80	80	80	80	50	80	80	80	80	65	1	80
17 Carleton Place	75	75	75	75	75	75	75	75	75	75	.....	43
18 Cayuga	40	40	40	40	40	40	40	40	40	40	.....	15
19 Chatham	122	122	134	122	134	134	134	134	62	67	1	77
20 Clinton	120	120	120	120	120	120	120	120	120	120	20	89
21 Cobourg C. I.	65	65	108	108	78	105	100	115	84	87	3	40
22 Colborne	48	48	48	48	48	48	48	48	48	48	2	6
23 Collingwood C. I.	232	232	290	290	290	290	290	261	289	285	24	141
24 Cornwall	98	98	98	98	98	98	98	98	98	98	.....	51
25 Dundas	75	75	75	75	75	75	75	75	75	75	.....	18
26 Dunnville	55	55	55	55	55	55	55	55	55	55	.....	16
27 Elora	74	74	74	74	74	74	74	74	68	68	.....	40
28 Essex Centre	19	19	19	19	19	19	19	19	19	19	.....	19
29 Farmersville	120	120	120	120	120	120	120	120	120	120	2	10
30 Fergus	115	45	115	115	100	115	115	115	93	87	.....	26
31 Galt C. I.	138	138	163	163	151	151	151	163	151	151	13	67
32 Gananoque	74	73	73	73	73	73	73	74	74	68	1	36
33 Goderich	140	176	176	176	176	176	176	176	176	165	8	40
34 Grimsby	61	61	61	61	61	61	61	61	59	56	.....	36
35 Guelph	246	246	246	246	246	246	246	246	246	196	10	51
36 Hamilton C. I.	518	488	518	518	518	418	518	518	520	368	10	100
37 Harriston	137	137	137	137	137	137	137	137	133	132	2	122
38 Hawkesbury	35	35	35	35	35	35	35	35	35	35	.....	35
39 Ingersoll	165	165	170	170	170	170	170	170	170	168	14	35
40 Iroquois	70	75	78	78	70	78	78	79	79	63	1	60

High Schools.

BRANCHES OF INSTRUCTION.

SUBJECTS.

In Chemistry.		In Botany.	In Latin.	In Greek.	In French.	In German.	In Writing.	In Book-keeping and Commercial Transactions.	In Drawing.	In Music.	In Précis Writing and Indexing.	In Phonography.	In Commercial Course.	Preparing for University Matriculation.		Preparing for a Learned Profession.	Preparing for a Teacher—Non-professional Examination.
														Jun.	Sen.		
1	8	.....	13	.....	25	.....	43	26	43	13	.....	.....	10	2	.....	2	21
2	14	.....	60	8	77	11	139	139	139	.....	.....	.....	.....	17	.....	4	100
3	35	.....	22	2	42	.....	56	56	56	.....	.....	.....	.....	.....	.....	.....	10
4	63	94	29	9	38	.....	67	114	132	42	.....	.....	.....	6	.....	5	97
5	38	53	84	17	82	6	118	150	130	47	.....	.....	.....	12	.....	8	51
6	4	4	12	1	9	14	28	28	28	20	28	.....	5	3	.....	2	12
7	63	20	74	18	110	12	200	123	252	.....	43	.....	37	10	3	1	50
8	52	.....	30	4	25	50	102	83	95	26	.....	2	15	5	4	6	34
9	20	10	25	2	25	12	98	92	80	.....	80	.....	50	8	.....	1	16
10	28	.....	44	6	31	3	75	75	75	75	2	.....	2	12	.....	4	26
11	10	73	80	6	89	6	120	73	190	73	2	.....	10	8	3	3	73
12	32	.....	105	21	112	30	290	290	290	.....	.....	.....	.....	9	.....	15	85
13	12	19	33	10	12	.....	48	48	49	.....	.....	.....	.....	3	.....	4	26
14	75	14	72	8	88	4	117	143	143	40	1	.....	8	14	.....	13	50
15	32	70	35	7	20	.....	103	70	103	103	.....	.....	.....	10	.....	19	70
16	20	60	14	8	.....	.....	80	50	50	.....	.....	.....	.....	5	.....	.....	48
17	21	21	22	4	23	.....	75	75	75	.....	.....	.....	.....	4	.....	.....	25
18	.....	1	19	3	35	.....	40	40	35	11	.....	4	.....	2	.....	2	9
19	25	.....	34	7	54	11	57	120	122	.....	.....	.....	.....	9	1	3	42
20	89	.....	45	12	40	.....	120	120	89	89	.....	1	20	11	2	.....	89
21	16	4	65	45	34	18	32	39	28	128	.....	.....	39	28	.....	10	29
22	19	9	29	2	16	.....	48	48	48	.....	.....	.....	.....	4	.....	16	21
23	131	30	80	21	80	8	232	248	232	38	.....	.....	38	17	.....	5	162
24	18	.....	26	7	55	1	98	44	57	.....	.....	.....	.....	7	.....	7	65
25	.....	18	29	8	26	.....	75	71	75	.....	.....	.....	71	14	.....	14	36
26	10	12	12	.....	8	.....	55	28	55	.....	55	.....	28	2	.....	.....	16
27	40	.....	18	1	47	20	.....	60	30	.....	.....	.....	.....	.....	.....	.....	.....
28	.....	.....	17	.....	11	.....	19	.....	19	.....	.....	.....	.....	.....	.....	.....	19
29	20	20	56	1	44	.....	120	39	39	.....	.....	.....	.....	2	1	6	39
30	14	7	32	9	41	.....	115	83	115	24	.....	.....	.....	2	.....	.....	30
31	53	27	54	15	72	34	128	181	147	67	.....	.....	12	31	7	43	80
32	3	.....	17	7	50	.....	74	74	73	14	.....	.....	.....	2	.....	8	17
33	24	30	45	9	70	12	60	65	120	.....	.....	.....	.....	6	2	8	66
34	6	.....	27	4	30	2	61	61	61	61	.....	.....	.....	5	.....	10	26
35	40	.....	67	12	75	32	150	124	230	.....	.....	.....	.....	9	.....	.....	74
36	51	12	122	30	100	35	259	210	400	315	170	70	110	20	.....	7	95
37	39	28	18	10	27	9	.....	99	134	61	.....	.....	.....	7	.....	5	80
38	9	20	15	1	6	.....	35	14	35	35	.....	.....	.....	3	.....	7	20
39	40	45	58	6	45	1	160	162	162	120	.....	.....	30	4	.....	5	45
40	12	30	13	1	22	.....	60	60	78	.....	.....	.....	.....	5	1	10	60

VIII.—TABLE H.—The

NUMBER OF PUPILS IN THE VARIOUS

HIGH SCHOOLS.	SUBJECTS.											
	In Reading.	In Orthography and Orthoëpy.	In English Grammar.	In Composition.	In Literature.	In History.	In Geography.	In Arithmetic and Mensuration.	In Algebra.	In Euclid.	In Trigonometry.	In Physics.
41 Kemptville.....	101	101	101	101	101	101	101	101	101	101	.....	80
42 Kincardine.....	111	111	111	111	111	111	111	111	111	111	3	80
43 Kingston C. I.....	45	45	170	170	170	170	74	170	170	170	20	36
44 Lindsay.....	109	146	146	146	146	146	146	146	146	146	8	78
45 Listowel.....	68	68	68	68	68	68	68	68	64	64	1	68
46 London C. I.....	80	369	369	369	180	369	369	369	360	360	4	70
47 Markham.....	78	84	84	84	49	84	84	84	84	83	2	48
48 Mitchell.....	111	111	113	113	113	113	113	113	80	78	2	54
49 Morrisburg.....	141	141	141	141	141	141	141	141	141	141	9	120
50 Mount Forest.....	106	106	106	106	106	106	106	106	70	106	2	28
51 Napanee.....	156	156	156	156	156	156	156	156	156	156	10	80
52 Newburgh.....	52	52	52	52	30	52	52	52	52	52	2	30
53 Newcastle.....	42	34	42	42	34	42	42	34	42	42	.....	19
54 Newmarket.....	130	139	139	139	139	139	139	139	130	136	1	80
55 Niagara.....	35	35	35	35	35	35	35	37	33	27	1	32
56 Niagara Falls, S.....	82	82	82	82	82	82	82	82	80	72	.....	18
57 Norwood.....	60	60	60	60	60	60	60	60	35	35	.....	33
58 Oakville.....	45	35	60	60	35	60	60	60	60	60	1	20
59 Oakwood.....	62	62	62	62	62	62	62	62	62	62	1	47
60 Onemee.....	34	34	34	34	34	30	30	34	30	34	.....	20
61 Orangeville.....	123	123	123	123	123	123	123	123	123	123	6	98
62 Orillia.....	110	110	112	113	113	109	111	113	110	112	3	47
63 Oshawa.....	164	164	164	164	164	164	164	164	163	162	8	80
64 Ottawa C. I.....	201	268	268	268	268	268	268	268	268	268	16	29
65 Owen Sound.....	235	235	235	235	235	240	240	244	244	244	.....	100
66 Paris.....	61	61	61	61	61	61	61	61	61	61	.....	16
67 Parkhill.....	87	87	87	87	87	87	87	87	87	87	.....	35
68 Pembroke.....	128	109	128	117	105	121	115	128	128	128	.....	116
69 Perth C. I.....	174	174	174	174	174	174	174	174	171	174	16	11
70 Peterboro' C. I.....	197	143	197	197	197	197	197	197	164	141	4	62
71 Petrolea.....	134	134	134	134	134	134	134	134	133	125	1	58
72 Picton.....	160	160	160	160	160	160	160	160	160	160	2	84
73 Port Dover.....	65	65	65	65	65	65	65	65	65	65	.....	60
74 Port Hope.....	155	155	155	155	155	155	155	155	155	155	.....	57
75 Port Perry.....	110	114	114	114	114	114	98	114	114	114	16	64
76 Port Rowan.....	45	45	45	45	45	45	45	45	45	45	2	22
77 Prescott.....	85	85	85	85	85	85	85	85	85	70	2	37
78 Renfrew.....	101	101	101	101	101	101	101	101	98	98	.....	101
79 Richmond Hill.....	101	101	101	101	101	101	101	101	95	93	2	83
80 Ridgetown.....	202	202	202	202	202	202	202	202	202	202	6	202
81 Sarnia.....	201	201	201	201	161	201	01	201	201	201	.....	118

High Schools.

BRANCHES OF INSTRUCTION.

SUBJECTS.

In Chemistry.		In Botany.		In Latin.		In Greek.		In French.		In German.		In Writing.		In Book-keeping and Commercial Transactions.		In Drawing.		In Music.		In Précis Writing and Indexing.		In Phonography.		In Commercial Course.		Preparing for University Matriculation.		Preparing for a Learned Profession.		Preparing for a Teacher—Non-professional Examination.	
																										Jun.		Sen.			
41	22	68	31	2	25	.....	101	96	101	34	.....	.....	.....	2	2	.....	64									
42	35	58	29	7	27	.....	50	102	111	.....	.....	.....	.....	7	.....	11	84								
43	48	18	128	16	136	56	38	35	46	18	.....	42	23	18	5	46	23													
44	42	47	31	4	52	21	84	84	125	.....	.....	.....	26	14	.....	4	102										
45	3	46	14	3	.....	.....	68	68	68	68	.....	.....	.....	3	.....	2	15								
46	60	10	110	18	130	28	300	340	350	.....	.....	.....	.....	14	.....	18	100									
47	25	44	56	.....	31	.....	56	84	68	.....	.....	.....	11	.....	.....	3	31							
48	23	35	16	.....	18	32	111	111	113	.....	.....	.....	.....	.....	.....	.....	50						
49	22	41	58	11	60	3	141	132	135	50	.....	.....	22	15	3	11	44												
50	50	30	36	3	27	5	106	36	106	60	.....	.....	30	5	.....	.....	60										
51	30	18	60	34	90	.....	.....	80	156	.....	.....	.....	.....	4	3	.....	50							
52	13	30	12	2	10	.....	52	40	52	52	30	.....	.....	1	.....	1	50										
53	12	22	6	3	18	.....	8	8	42	.....	.....	.....	.....	.....	.....	2	28							
54	43	50	42	4	35	8	130	122	136	.....	.....	.....	.....	6	.....	10	75									
55	4	14	6	4	21	.....	37	14	20	23	.....	20	14	4	.....	4	4											
56	10	.....	28	1	39	8	82	82	75	.....	.....	.....	71	14	.....	14	36									
57	15	20	5	.....	10	.....	60	60	60	30	.....	.....	5	.....	.....	5	55								
58	14	.....	9	3	31	.....	50	50	55	.....	5	.....	.....	3	.....	2	28								
59	17	12	18	2	23	.....	62	62	62	62	.....	.....	.....	4	2	2	32										
60	.....	15	7	4	11	.....	34	20	20	.....	20	.....	.....	4	.....	1	15								
61	34	46	34	14	28	8	55	117	117	25	.....	.....	.....	.....	.....	13	35									
62	35	2	48	15	53	2	99	91	113	.....	.....	31	47	6	.....	5	55											
63	48	.....	51	13	87	10	164	163	164	.....	.....	.....	162	9	.....	45	35									
64	50	26	201	21	210	23	223	259	66	.....	.....	.....	195	6	.....	32	53										
65	29	81	140	8	102	21	150	208	215	39	3	30	20	10	.....	10	50													
66	12	12	41	.....	15	.....	61	49	61	.....	5	.....	5	.....	.....	.....	15							
67	21	21	24	.....	33	5	87	87	87	.....	9	.....	9	1	.....	3	50										
68	30	28	66	16	46	.....	128	128	128	.....	.....	.....	.....	12	.....	10	25								
69	35	11	53	6	105	19	174	161	43	.....	.....	.....	3	16	.....	7	39										
70	42	.....	91	8	138	9	190	90	143	.....	.....	.....	.....	10	.....	.....	6							
71	39	22	58	.....	44	7	134	134	133	.....	.....	.....	3	3	.....	5	66									
72	36	35	32	9	46	8	160	90	160	.....	.....	.....	.....	10	.....	.....	75								
73	18	16	15	1	27	8	47	64	62	.....	.....	.....	.....	2	.....	.....	20								
74	57	.....	42	12	82	3	98	133	155	.....	.....	57	36	6	.....	5	46										
75	64	35	38	8	48	6	108	108	108	102	.....	.....	12	6	.....	4	62											
76	15	15	12	2	9	.....	45	30	45	25	.....	.....	5	.....	2	20	25										
77	14	15	26	.....	40	.....	85	58	85	61	.....	.....	.....	.....	.....	3	10							
78	11	8	18	4	23	.....	101	84	101	.....	.....	.....	.....	3	.....	.....	32							
79	31	11	57	13	37	2	67	80	101	45	2	.....	.....	3	.....	.....	35										
80	48	45	43	10	80	12	150	202	202	.....	.....	.....	20	12	.....	10	68										
81	50	78	57	.....	107	17	201	201	201	201	.....	51	.....	6	.....	4	109										

VIII.—TABLE H.—The

NUMBER OF PUPILS IN THE VARIOUS

HIGH SCHOOLS.	SUBJECTS.											
	In Reading.	In Orthography and Orthoëpy.	In Grammar.	In Composition.	In Literature.	In History.	In Geography.	In Arithmetic and Mensuration.	In Algebra.	In Euclid.	In Trigonometry.	In Physics.
82 Seaforth.....	123	123	129	129	131	131	129	131	131	131	7	78
83 Simcoe.....	126	126	126	126	126	126	126	126	120	120	.....	60
84 Smith's Falls.....	68	68	68	68	68	68	68	68	68	68	.....	47
85 Smithville.....	68	68	68	68	68	68	68	68	68	68	.....	68
86 Stratford C. I.....	282	292	295	295	295	293	293	287	288	288	8	93
87 Strathroy C. I.....	270	270	270	270	270	270	270	270	260	260	6	190
88 Streetsville.....	68	68	68	68	68	68	68	68	64	64	.....	25
89 St. Catharines C.I.....	240	240	240	240	240	240	240	240	220	220	25	78
90 St. Mary's C. I.....	192	192	192	192	192	192	192	192	192	192	8	171
91 St. Thomas C. I.....	341	341	341	341	341	341	341	341	341	262	6	240
92 Sydenham.....	75	75	76	75	76	75	75	76	76	76	5	75
93 Thorold.....	68	68	68	68	68	68	68	68	68	60	.....	6
94 Toronto C. I.....	532	300	500	532	532	532	532	532	532	520	35	462
95 Trenton.....	78	78	78	78	78	78	78	83	83	83	5	15
96 Uxbridge.....	101	101	101	101	101	101	101	101	101	95	8	35
97 Vankleekhill.....	85	85	85	85	85	85	85	85	82	85	.....	23
98 Vienna.....	48	48	48	48	48	48	48	48	48	42	.....	7
99 Walkerton.....	197	197	197	197	162	197	197	197	197	197	5	123
100 Wardsville.....	69	69	69	69	69	69	69	69	69	69	.....	32
101 Waterdown.....	93	93	93	93	93	93	93	93	93	93	.....	68
102 Welland.....	115	117	117	117	85	117	117	116	116	113	2	8
103 Weston.....	68	68	68	68	68	68	68	68	68	68	3	9
104 Whitby.....	161	161	170	170	177	170	170	170	177	177	11	88
105 Williamstown.....	71	70	73	73	73	73	73	73	73	71	.....	39
106 Windsor.....	136	136	136	136	136	136	136	136	136	136	1	65
107 Woodstock.....	160	160	163	163	163	160	160	160	163	163	4	88
1 Total, 1885.....	13253	13217	13942	14022	13497	13912	13885	14017	13633	13166	461	6939
2 " 1884.....	11792	.....	12577	12525	12046	12393	12448	12638	11490	11002	.....	.....
3 Increase.....	1461	.....	1365	1497	1451	1519	1437	1379	2143	2164	.....	.....
4 Decrease.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 Percentage of total attendance.....	93	93	98	98	94	98	97	98	96	92	3	49

High Schools.

BRANCHES OF INSTRUCTION.

SUBJECTS.

In Chemistry.	In Botany.	In Latin.	In Greek.	In French.	In German.	In Writing.	In Book-keeping and Commercial Transactions.	In Drawing.	In Music.	In Précis Writing and Indexing.	In Phonography.	In Commercial Course.	Preparing for University Matriculation.	Preparing for a Learned Profession.	Preparing for a Teacher—Non-professional Examination.
													Jun.	Sen.	
82 43	10	39	9	57	4	121	102	121	60	17		88	4		2
83 30	30	33	8	45	25	126	126	126	40			10	21		7
84 19	4	32	10	31		68	68	68					10		1
85 20	48	9	2	8		68	25	68	60			3	3		1
86 63	53	97	17	81	147	289	257	289	209		13		15	3	20
87 70	210	90	18	70	12	240	240	240	90			80	18		12
88 24	25	28	3	24	8	68	68	64		4		1	4		
89 40	32	78	37	98	17	200	200	200	108			20	20	1	10
90 67	90	65	15	78	11	192	171	171	105	22			19	2	5
91 123	84	128	12	153	34	341	257	293	253		30	127	10		25
92 19	2	22	4	19		73	73	73	29				3	2	3
93 12	6	15		50		68	45	35		45		8	8		8
94 389	70	275	44	355	82	450	500	350			61				
95 7	15	20	6	33	2	78	78	78	78					3	6
96 30		62	10	68	12	45	65	87		35					2
97 15	20	25	2	40		85	20	23	23	5		5			
98 17		13	1	25		48	48	48					1		1
99 36	28	48	13	23	58	197	143	182	29				14		45
100 37	20	22		7		43	37	69							4
101 15	15	29	2	18		93	77	93					2		
102	8	87	15	14	21	113	85	91				17	11		5
103 9		50	4	16		68	68	35					4		6
104 47		86	22	84	12	161	161	161	75		65	10	9	7	4
105 3	10	15	6	40	2		70	70			5		4		
106 25	22	18	2	43		100	131	136	60			20	2	1	
107 45	60	28	9	57	12	159	159	159	45			28	3	3	35
1 3612	2685	4937	903	5528	1111	11463	11145	12150	3547	621	482	1643	741	58	763
2 3046	1880	4434	927	5119	1089		7407	8126	3428						
3 566	805	483		409	22		3738	4024	119						
4			24												
5 25	19	35	6	39	8	80	79	85	25	4	3	12	5	10	5

IX.—TABLE I.—The

MISCELLANEOUS

HIGH SCHOOLS.	Brick, Stone or Frame.	Freehold or Rented.	Size of Playground.	Schools under United Boards.	Number of Maps in School.	Number of Globes in School.	Schools in which there are daily prayers.	Number of pupils who matriculated at any University.
			acres.					
1 Alexandria	B.	F.	4/5	.....	12	1	.....	1
2 Almonte	S.	R.	1	1	12	1	1	5
3 Arnprior	B.	F.	1 1/2	1	15	1	.....	.....
4 Aymer	B.	F.	2	.....	12	1	1	2
5 Barrie, C. I.	B.	F.	3	.....	20	.....	.....	5
6 Beamsville	B.	R.	2 1/2	1	18	2	1	1
7 Belleville	B.	F.	1 1/2	1	25	2	1	5
8 Berlin	B.	F.	6	.....	12	1	1	2
9 Bowmanville	B.	F.	1 1/2	1	12	1	.....	2
10 Bradford	B.	F.	2	.....	10	2	.....	6
11 Brampton	B.	F.	5	.....	30	1	1	1
12 Brantford, C. I.	B.	F.	1	.....	20	1	1	6
13 Brighton	B.	F.	1 1/2	1	28	1	1	2
14 Brockville	S.	F.	1 1/2	.....	24	1	1	.....
15 Caledonia	B.	F.	2	1	15	1	1	.....
16 Campbellford	S.	F.	1	1	12	1	.....	1
17 Carleton Place	S.	F.	1 1/2	1	18	.....	1	6
18 Cayuga	B.	F.	1 1/2	.....	17	1	.....	.....
19 Chatham	B.	F.	5	.....	24	3	1	1
20 Clinton	B.	F.	3 1/2	.....	12	2	1	6
21 Cobourg, C. I.	B.	F.	2 1/5	.....	36	2	1	12
22 Colborne	B.	F.	1	1	3	.....	1	3
23 Collingwood, C. I.	B.	F.	1	.....	28	2	1	4
24 Cornwall	B.	F.	1 4/5	.....	26	1	1	5
25 Dundas	B.	F.	4/5	1	30	2	1	2
26 Dunnville	B.	F.	1/2	.....	16	.....	1	2
27 Elora	S.	R.	1	.....	16	1	1	1
28 Essex Centre	F.	R.	2/5	.....	12	1	1	.....
29 Farmersville	S.	F.	2	1	10	1	1	3
30 Fergus	B.	F.	1	1	13	1	1	.....
31 Galt, C. I.	S.	F.	8 1/2	.....	52	4	1	10
32 Gananoque	S.	F.	.....	1	31	.....	1	.....
33 Goderich	B.	F.	1 1/2	.....	18	2	1	3
34 Grimsby	F.	F.	1	.....	12	2	1	.....
35 Guelph	S.	F.	4	1	25	1	1	2
36 Hamilton, C. I.	S.	F.	1	1	30	2	1	8
37 Harriston	B.	F.	3	.....	14	1	1	3
38 Hawkesbury	B.	F.	1 1/2	1	25	2	1	3
39 Ingersoll	B.	F.	2 1/2	1	15	1	1	1
40 Iroquois	S.	F.	1	.....	12	1	1	2

High Schools

INFORMATION.

Number of pupils who entered mer- cantile life.		Number of pupils who became occu- pied with agriculture.		Number of pupils who joined any learned profession.		Number of pupils who left for other occupations.		Number of pupils in Preparatory Department.		Number of Masters and Teachers.		Salary of Head Master.		HEAD MASTERS AND THEIR UNIVERSITIES.	
												\$			
1	3	8	1	4		2	850	W. D. Johnston, B.A., <i>Toronto</i> .							
2	2	.....	3	4	.....	3	1000	P. C. McGregor, B.A., <i>Queen's</i> .					
3	5	.....	4	2	.....	2	875	L. C. Corbett, B.A., <i>Toronto</i> .					
4	4	7	6	20	.....	3	1200	W. W. Rutherford, B.A., <i>Toronto</i> .						
5	5	3	19	.....	4	1500	H. B. Spotton, M.A., <i>Toronto</i> .							
6	2	3	2	1	.....	2	750	A. W. Reavley, B.A., <i>Toronto</i> .						
7	12	5	5	50	.....	4	1100	G. S. Wright, M.A., <i>Toronto</i> .						
8	14	4	1	.....	4	1400	J. W. Connor, B.A., <i>Toronto</i> .							
9	12	12	.....	12	.....	3	1400	W. W. Tamblin, M.A., <i>Toronto</i> .					
10	2	7	6	8	.....	2	1000	W. Forrest, M.D., B.A., <i>Toronto</i> .						
11	6	4	1	40	.....	4	1100	A. Murray, M.A., <i>Aberdeen</i> .						
12	.....	.....	2	.....	7	1500	W. Oliver, B.A., <i>Toronto</i> .					
13	2	1	4	5	.....	2	750	S. T. Hopper, B.A., <i>Victoria</i> .						
14	13	4	4	15	.....	3	1200	A. W. Burt, B.A., <i>Toronto</i> .						
15	9	12	1	4	.....	3	1090	L. A. Kennedy, M.A., <i>Victoria</i> .						
16	6	6	.....	40	.....	2	1050	A. G. Knight, B.A., <i>Victoria</i> .					
17	5	3	7	2	.....	2	900	J. R. Johnston, B.A., <i>Queen's</i> .						
18	2	.....	.....	7	.....	2	860	A. Cole, B.A., <i>Toronto</i> .				
19	.....	.....	.....	.....	6	1200	A. W. A. Finlay, B.A., <i>Victoria</i> .				
20	10	8	6	23	.....	4	1200	J. Turnbull, B.A., <i>Toronto</i> .						
21	8	5	.....	38	47	4	1200	D. C. McHenry, M.A., <i>Victoria</i> .						
22	2	3	2	3	.....	2	833	J. S. Bellamy, B.A., <i>Victoria</i> .						
23	4	4	6	9	.....	5	1556	W. Williams, B.A., <i>Toronto</i> .						
24	4	.....	.....	.....	3	1000	J. Smith, M.A., <i>Aberdeen</i> .					
25	5	5	5	11	.....	2	1100	J. D. Bissonnette, B.A., <i>Queen's</i> .						
26	3	1	.....	.....	2	800	J. P. Hume, B.A., <i>Queen's</i> .						
27	10	15	6	4	.....	2	900	D. Mackay, B.A., <i>Toronto</i> .						
28	.....	.....	.....	.....	2	1000	A. Weir, B.A., <i>Toronto</i> .				
29	10	5	3	25	.....	2	1000	W. Johnston, M.A., <i>Victoria</i> .						
30	6	14	14	18	.....	2	1000	C. F. McGillivray, M.A., <i>Toronto</i> .						
31	12	7	11	8	.....	5	1600	T. Carscadden, M.A., <i>Toronto</i> .						
32	4	2	3	6	.....	2	1000	W. K. T. Smellie, B.A., <i>Toronto</i> .						
33	4	1	.....	27	.....	4	1200	H. I. Strang, B.A., <i>Toronto</i> .					
34	.....	5	2	3	.....	2	825	C. W. Mulloy, B.A., <i>Toronto</i> .					
35	24	30	.....	.....	5	1050	W. Tytler, B.A., <i>Toronto</i> .						
36	100	.....	12	20	.....	15	1400	P. S. Campbell, B.A., <i>Toronto</i> .					
37	10	14	3	25	.....	3	1200	J. McMurchie, B.A., <i>Toronto</i> .						
38	1	.....	4	4	.....	2	900	J. A. Houston, B.A., <i>Trinity</i> .					
39	10	5	24	10	.....	4	1000	F. W. Merchant, M.A., <i>Victoria</i> .						
40	6	10	.....	12	.....	2	800	W. A. Whitney, M.A., <i>Victoria</i> .					

IX.—TABLE I.—The

MISCELLANEOUS

HIGH SCHOOLS.	Brick, Stone or Frame.	Freehold or Rented.	Size of Playground.	Schools under United Boards.	Number of Maps in School.	Number of Globes in School.	Schools in which there are daily prayers.	Number of pupils who matriculated at any University.
			acres.					
41 Kemptville.....	B.	F.	2	1	12	1	1	.....
42 Kincardine.....	B.	F.	1 $\frac{1}{2}$	1	25	1	1	1
43 Kingston, C. I.....	S.	F.	1	.....	24	2	1	23
44 Lindsay.....	B.	F.	8	1	40	2	1	4
45 Listowel.....	B.	F.	2	.....	12	1	1	.....
46 London, C. I.....	B.	F.	2 $\frac{1}{2}$	1	18	2	1	3
47 Markham.....	B.	F.	2	.....	23	2	1	.....
48 Mitchell.....	B.	F.	2 $\frac{1}{2}$	.....	22	2	1	.....
49 Morrisburg.....	B.	F.	2 $\frac{1}{2}$	1	18	.....	1	3
50 Mount Forest.....	F.	R.	3 $\frac{1}{2}$	.....	14	1	1	2
51 Napanee.....	B.	F.	7 $\frac{1}{2}$	1	36	2	1	2
52 Newburgh.....	S.	F.	1	1	5	1	1	.....
53 Newcastle.....	B.	F.	1	1	20	1	1	1
54 Newmarket.....	B.	F.	2	.....	25	1	1	3
55 Niagara.....	B.	F.	2 $\frac{1}{2}$	.....	22	2	1	.....
56 Niagara Falls, South.....	F.	F.	2 $\frac{1}{2}$	.....	10	1	1	.....
57 Norwood.....	B.	F.	1	1	12	1	1	.....
58 Oakville.....	B.	F.	1 $\frac{1}{2}$	1	4	2	1	1
59 Oakwood.....	B.	F.	1 $\frac{1}{2}$	.....	12	1	1	1
60 Omemee.....	F.	F.	1 $\frac{1}{2}$	1	15	.....	1	.....
61 Orangeville.....	B.	F.	1 $\frac{1}{2}$	.....	28	1	1	2
62 Orillia.....	B.	F.	3	.....	10	1	1	2
63 Oshawa.....	B.	F.	3 $\frac{1}{2}$	1	12	1	1	3
64 Ottawa, C. I.....	S.	F.	1 $\frac{1}{2}$	.....	25	3	1	5
65 Owen Sound.....	B.	F.	4 $\frac{1}{2}$	1	30	2	1	3
66 Paris.....	B.	F.	1	1	26	1	1	.....
67 Parkhill.....	B.	R.	1	1	6	2	1	1
68 Pembroke.....	B.	R.	1	1	3	.....	1	2
69 Perth, C. I.....	B.	F.	5 $\frac{1}{2}$	1	13	1	1	6
70 Peterboro', C. I.....	B.	R.	2	1	50	1	1	5
71 Petrolia.....	B.	F.	2	.....	10	.....	1	.....
72 Picton.....	B.	F.	1	.....	10	1	1	1
73 Port Dover.....	B.	F.	2	1	20	2	1	2
74 Port Hope.....	B.	F.	3	.....	15	2	1	2
75 Port Perry.....	B.	F.	1 $\frac{1}{2}$	1	24	1	1	.....
76 Port Rowan.....	B.	F.	2 $\frac{1}{2}$	1	20	1	1	1
77 Prescott.....	S.	R.	8	1	26	3	1	.....
78 Renfrew.....	B.	F.	3	1	8	.....	1	.....
79 Richmond Hill.....	B.	R.	1	1	24	1	1	4
80 Ridgetown.....	B.	F.	1 $\frac{1}{2}$	.....	16	1	1	3
81 Sarnia.....	B.	F.	1 $\frac{1}{2}$	1	28	4	1	.....

High Schools.

INFORMATION.

Number of pupils who entered mercantile life.		Number of pupils who became occupied with agriculture.		Number of pupils who joined any learned profession.		Number of pupils who left for other occupations.		Number of pupils in Preparatory Department.		Number of Masters and Teachers.		Salary of Head Master.		HEAD MASTERS AND THEIR UNIVERSITIES.	
												£			
41	2	1	20	1	.....	2	800	W. S. Cody, B.A., <i>Toronto.</i>							
42	5	3	.....	4	.....	4	1100	B. Freer, B.A., <i>Trinity.</i>							
43	15	.....	1	4	24	8	1300	A. P. Knight, M.A., <i>Queen's.</i>							
44	15	6	.....	15	.....	4	1200	W. O'Connor, M.A., <i>Queen's, Ireland.</i>							
45	.....	.....	.....	25	.....	2	1000	A. B. McCallum, M.A., <i>Queen's.</i>							
46	.....	.....	.....	.....	.....	8	1200	Rev. F. L. Checkley, B.A., <i>Trinity.</i>							
47	2	10	.....	16	.....	2	900	C. R. Gunne, B.A., <i>Trinity.</i>							
48	5	4	11	11	.....	2	900	W. Elliot, B.A., <i>Toronto.</i>							
49	3	4	20	7	.....	2	1250	J. S. Jamieson, M.A., <i>Victoria.</i>							
50	5	6	3	30	.....	4	1150	J. Reid, B.A., LL.B., <i>Toronto.</i>							
51	.....	.....	.....	.....	.....	4	1200	C. Fessenden, B.A., <i>Toronto.</i>							
52	.....	3	.....	5	.....	2	800	D. Hicks, B.A., <i>Toronto.</i>							
53	2	2	1	1	.....	2	800	W. W. Jardine, B.A., <i>Toronto.</i>							
54	2	6	15	10	.....	3	1000	J. E. Dickson, B.A., <i>Toronto.</i>							
55	4	3	.....	11	.....	2	900	A. Andrews, <i>Certificate.</i>							
56	4	6	.....	20	.....	2	800	M. M. Fenwick, B.A., <i>Toronto.</i>							
57	5	4	10	2	.....	2	1200	J. Davidson, M.A., <i>Victoria.</i>							
58	5	5	6	10	.....	2	1050	N. J. Wellwood, B.A., <i>Toronto.</i>							
59	.....	.....	.....	.....	.....	2	800	J. C. Pomeroy, B.A., <i>Albert.</i>							
60	.....	.....	.....	.....	.....	2	850	J. A. Tanner, M.A., <i>Trinity.</i>							
61	7	3	18	11	.....	3	1200	A. Steele, B.A., <i>Toronto.</i>							
62	15	18	4	19	.....	3	1000	J. Ryerson, B.A., <i>Toronto.</i>							
63	5	10	5	12	.....	4	1300	L. C. Smith, B.A., <i>Victoria.</i>							
64	39	11	6	46	.....	7	1800	J. Macmillan, B.A., <i>Toronto.</i>							
65	30	40	10	30	.....	5	1200	H. De La Matter, <i>Certificate.</i>							
66	3	4	4	6	.....	2	1100	J. W. Acres, B.A., LL.B., <i>Trinity.</i>							
67	4	12	14	.....	.....	2	800	E. M. Bigg, M.A., <i>Toronto.</i>							
68	20	5	11	12	.....	3	1050	E. Odium, M.A., <i>Victoria.</i>							
69	5	13	.....	17	.....	4	1200	W. Rothwell, B.A., <i>Queen's.</i>							
70	.....	.....	.....	.....	.....	5	1200	W. Tassie, M.A., LL.D., <i>Toronto.</i>							
71	2	2	.....	35	.....	3	1100	S. Philips, B.A., <i>Victoria.</i>							
72	.....	.....	.....	.....	.....	3	1200	R. Dobson, B.A., <i>Victoria.</i>							
73	.....	.....	.....	.....	.....	2	1000	R. A. Barron, B.A., <i>Toronto.</i>							
74	15	.....	3	5	.....	4	1300	A. Purslow, M.A., LL.D., <i>Victoria.</i>							
75	8	12	6	30	.....	3	1400	D. McBride, B.A., <i>Victoria.</i>							
76	5	4	4	5	.....	2	900	A. G. MacKay, M.A., <i>Toronto.</i>							
77	3	.....	.....	12	.....	2	1000	M. McPherson, M.A., <i>Victoria.</i>							
78	3	5	23	5	.....	3	900	C. McDowell, B.A., <i>Queen's.</i>							
79	2	3	6	15	.....	2	1000	J. McBride, M.A., B.Sc., <i>Toronto.</i>							
80	6	8	5	5	.....	5	1200	G. A. Chase, B.A., <i>Toronto.</i>							
81	27	16	4	18	.....	4	1200	W. Sinclair, B.A., <i>Toronto.</i>							

IX.—TABLE. I.—The

MISCELLANEOUS

HIGH SCHOOLS.	Brick, Stone or Frame.	Freehold or Rented.	Size of Playground.	Schools under United Boards.	Number of Maps in School.	Number of Globes in School.	Schools in which there are daily prayers.	Number of pupils who matriculated at any University.
			acres.					
82 Seaforth	B.	F.	3 $\frac{1}{2}$	1	34	1	1	4
83 Simcoe	B.	F.	3 $\frac{1}{2}$	1	20	1	1	1
84 Smith's Falls	B.	F.	1	1	9	1	1	1
85 Smithville	F.	F.	1	1	20	1	1	1
86 Stratford, C. I.	B.	F.	3 $\frac{1}{2}$	1	31	2	1	4
87 Strathroy, C. I.	B.	F.	1 $\frac{1}{2}$	1	12	2	1	5
88 Streetsville	B.	F.	1 $\frac{1}{2}$	1	17	2	1	1
89 St. Catharines, C. I.	B.	F.	2	1	25	3	1	12
90 St. Mary's, C. I.	B.	F.	2	1	19	2	1	6
91 St. Thomas, C. I.	B.	F.	2	1	16	2	1	3
92 Sydenham	S.	F.	1 $\frac{1}{2}$	1	16	1	1	2
93 Thorold	B.	F.	2 $\frac{1}{2}$	1	18	1	1	2
94 Toronto, C. I.	B.	F.	2	1	54	2	1	15
95 Trenton	B.	F.	3 $\frac{1}{5}$	1	16	1	1	5
96 Uxbridge	B.	F.	2 $\frac{1}{2}$	1	20	1	1	6
97 Vankleekhill	B.	F.	1 $\frac{1}{2}$	1	16	1	1	1
98 Vienna	B.	F.	1 $\frac{1}{2}$	1	28	1	1	1
99 Walkerton	B.	F.	1 $\frac{1}{2}$	1	17	1	1	4
100 Wardsville	B.	F.	2	1	13	1	1	1
101 Waterdown	S.	F.	3 $\frac{1}{2}$	1	16	1	1	1
102 Welland	B.	F.	1	1	12	2	1	1
103 Weston	B.	F.	1 $\frac{1}{2}$	1	18	1	1	3
104 Whitby	B.	F.	1	1	64	1	1	2
105 Williamstown	B.	F.	1	1	26	1	1	3
106 Windsor	B.	F.	1	1	21	1	1	1
107 Woodstock	B.	F.	1	1	20	2	1	3
	B. S. F.	F. R.	acres.					
1 Total, 1885	84 17 6	97 10	195	53	2123	141	98	290
2 Total, 1884	81 19 6	99 7	188	54	2133	152	90	266
3 Increase	3	3	7	1	10	11	8	24
4 Decrease	2	2	1	1	10	11	1	1

High Schools.

INFORMATION.

Number of pupils who entered mer- cantile life.		Number of pupils who became occu- pied with agriculture.		Number of pupils who joined any learned profession.		Number of pupils who left for other occupations.		Number of pupils in Preparatory Department.		Number of Masters and Teachers.		Salary of Head Master.		HEAD MASTERS AND THEIR UNIVERSITIES.			
												\$					
82	4	2	12	1	.....	4	1200	J. C. Harstone, B.A., <i>Toronto</i> .								
83	10	10	3	30	.....	3	1200	D. S. Paterson, B.A., <i>Toronto</i> .								
84	1	.....	.....	5	.....	2	1000	N. Robertson, B.A., <i>Toronto</i> .							
85	.....	10	.....	12	.....	2	800	A. C. Crosby, B.A., <i>Albert</i> .							
86	19	13	40	20	.....	7	1400	W. McBride, M.A., <i>Toronto</i> .								
87	20	20	10	70	.....	5	1400	J. E. Wetherell, B.A., <i>Toronto</i> .								
88	1	.....	.....	1	.....	2	750	A. B. Cooke, B.A., <i>Trinity</i> .							
89	20	5	40	50	.....	7	1600	J. Henderson, M.A., <i>Toronto</i> .								
90	12	5	3	15	.....	5	1200	I. M. Levan, B.A., <i>Toronto</i> .								
91	30	40	12	80	.....	7	1580	J. Millar, B.A., <i>Toronto</i> .								
92	2	.....	.....	17	.....	2	1200	J. E. Burgess, M.A., <i>Queen's</i> .							
93	6	10	2	6	.....	2	1167	A. McCulloch, M.A., <i>Queen's</i> .								
94	44	3	42	44	90	12	2350	A. McMurchy, M.A., <i>Toronto</i> .									
95	3	2	.....	18	.....	3	1000	B. N. Davis, B.A., <i>Queen's</i> .							
96	.....	.....	2	20	.....	3	1300	J. J. Magee, B.A., <i>Toronto</i> .							
97	.....	.....	.....	.....	.....	2	850	A. H. Watson, B.A., <i>Toronto</i> .							
98	2	2	4	2	.....	2	850	A. Miller, M.A., <i>Victoria</i> .								
99	16	9	8	32	.....	4	1100	J. Morgan, M.A., <i>Toronto</i> .								
100	3	5	4	20	.....	2	800	W. G. MacLachlan, B.A., <i>Toronto</i> .								
101	8	8	22	8	.....	2	900	A. Crichton, B.A., <i>Toronto</i> .								
102	12	15	14	27	.....	3	1200	J. M. Dunn, B.A., LL.B., <i>Toronto</i> .								
103	9	15	.....	15	.....	2	1200	G. Wallace, B.A., <i>Dublin</i> .							
104	8	10	14	8	.....	7	1550	L. E. Embree, B.A., <i>Toronto</i> .								
105	.....	.....	12	.....	.....	2	850	J. A. Monroe, B.A., <i>Victoria</i> .							
106	4	.....	12	37	.....	3	1100	A. Sinclair, M.A., <i>Toronto</i> .							
107	12	10	6	28	.....	4	1200	D. H. Hunter, B.A., <i>Toronto</i> .								
												Av.		61 Toronto. 20 Victoria. 11 Queen's. 7 Trinity. 2 Albert.		2 Aberdeen. 1 Dublin. 1 Queen's, I. 2 Certificates.	
1	856	636	639	1481	161	365	1104	High. sal. H. M., \$2,350. Low. H. M., \$750									
2	730	571	927	1004	182	358	1098	High. sal. H. M., \$2,350. Low. H. M., \$750									
3	126	65	.....	477	.....	7	6								
4	.....	.....	288	.....	21	.....	.....								

X.—TABLE K.—A GENERAL STATISTICAL ABSTRACT, exhibiting the comparative state and progress of Education in Ontario, as connected with Public, Separate and High Schools; also, Normal and Model Schools. From the years 1876 to 1885, inclusive, compiled from Returns in the Education Department.

No.	SUBJECTS COMPARED.	1876	1877	1878	1879	1880	1881	1882	1883	1884	1885 (5-21)
1	Population					1913460					
2	Population between the ages of five and sixteen years, up to 1884; and five to twenty-one, subsequently	502260	494804	492360	494424	489924	484224	483817	478791	471287	581947
3	County High Schools	104	104	104	104	104	104	104	104	106	107
4	Normal and Model Schools	4	4	4	4	4	6	6	6	6	6
5	Total Public Schools in operation	4875	4855	4813	4932	4941	5043	5013	5058	5109	5177
6	Total Roman Catholic Separate Schools	167	185	177	191	196	195	190	194	207	218
7	Grand Total of all Schools in operation	5150	5248	5098	5231	5245	5348	5313	5362	5428	5508
8	Total Pupils attending County High Schools	8541	9229	10574	12135	12910	13136	12848	11843	12737	14280
9	Total Students and Pupils attending Normal and Model Schools	694	686	608	820	1090	1116	1059	1098	1093	1063
10	Total Pupils attending Public Schools	465243	465908	463405	462233	457734	451449	445364	438192	439454	444868
11	Total Pupils attending Roman Catholic Separate Schools	25294	24952	25610	24779	25311	24819	26148	26177	27463	27580
12	Grand Total, Students and Pupils attending Public, Separate and High, Normal and Model Schools	499772	500745	500197	499868	497045	490520	484919	477310	480747	487771
13	Total amount paid for the Salaries of Public and Separate School Teachers	1838321	1938099	2011208	2072823	2113180	2106019	2144448	2210187	2258027	2327060
14	Total amount paid for the erection or repairs of Public and Separate School-Houses, and for Libraries and Apparatus, Books, Fuel, Stationery, &c	1168135	1036390	878139	740282	708872	738252	882526	808243	984835	985050

15 Grand Total paid for Public and Separate School Teachers' Salaries, the erection and repairs of School-Houses, and for Libraries and Apparatus, etc	\$3006456	2973489	2889347	2833084	2822052	2844271	3026974	3108430	3280862	3312700
16 Total amount paid for High School Teachers' Salaries	\$195906	211607	223010	241097	247894	257218	253864	266317	282776	294078
17 Total amount paid for erection or repairs of High School-Houses, Maps, Apparatus, Prizes, Fuel, Books, etc	\$109042	132102	173000	159691	166035	88632	89857	82630	102690	136683
18 Amount paid for other educational purposes	\$227548	257240	263510	235600	232172	233209	235814	240597	238469	243092
19 Grand Total paid for educational purposes	\$3538952	3574438	3548867	3469472	3468153	3423330	3606509	3697374	3904797	3985553
20 Total Public School Teachers	6185	6468	6473	6596	6747	6922	6887	6911	7085	7218
21 Total Male Teachers	2780	3020	3060	3153	3264	3362	3062	2829	2789	2744
22 Total Female Teachers	3406	3448	3413	3443	3483	3560	3795	4082	4296	4474
23 Average number of days each Public School has been kept open	205	204	206	208	208	208	206	207	208	208

APPENDICES.

APPENDICES.

APPENDIX A.—*PROCEEDINGS FOR THE YEAR 1886.*

1. ORDERS IN COUNCIL

- I. FIFTH READER CONTINUED TO BE AUTHORIZED TILL FIRST DAY OF JULY, 1886 (9th January, 1886).
-
- II. RATIFICATION OF AGREEMENT BETWEEN THE MINISTER OF EDUCATION AND THE FREE LIBRARY OF TORONTO, FOR THE TRANSFER OF CERTAIN SPECIFICATIONS OF PATENTS OF INVENTIONS (13th January, 1886).
-
- III. ESTABLISHMENT OF A HIGH SCHOOL IN THE VILLAGE OF DUTTON (13th January, 1886.)
-
- IV. INGERSOLL HIGH SCHOOL TO RANK AS A COLLEGIATE INSTITUTE (21st January, 1886).
-
- V. SURRENDER OF CERTAIN HIGH SCHOOL LANDS OF THE TOWN OF DUNDAS (6th January, 1886).
-
- VI. RIDGETOWN HIGH SCHOOL TO RANK AS A COLLEGIATE INSTITUTE (16th February, 1886).
-
- VII. DR. S. P. MAY APPOINTED COMMISSIONER TO THE COLONIAL AND INDIAN EXHIBITION (19th March, 1886).
-
- VIII. THE REV. GEORGE GRANT, M.A., APPOINTED PUBLIC SCHOOL INSPECTOR FOR THE DISTRICT OF PARRY SOUND (30th March, 1886).
-
- IX. GRATUITY TO DONALD BARRON (29th April 1886).
-
- X. ORDER OF 24TH JUNE, 1885, ABOLISHING THE HIGH SCHOOL AT VIENNA, RESCINDED (29th April, 1886).
-
- XI. GRATUITY TO MRS. SARAH McLEAN, WIDOW OF PETER McLEAN, LATE INSPECTOR OF THE DISTRICTS OF ALGOMA AND PARRY SOUND (5th May, 1886).

-
- XII. DONALD McCaig, Esquire, Appointed Public School Inspector for the District of Algoma (5th May, 1886). .

- XIII. JOHN CHARLES ROBERTSON, B.A., Exempted from Attendance at a Training Institute (20th May, 1886).

- XIV. RATIFICATION OF AGREEMENTS BETWEEN THE MINISTER OF EDUCATION AND THE CANADA PUBLISHING COMPANY (LIMITED), AND THE COPP, CLARK COMPANY (LIMITED), FOR THE PUBLICATION OF THE CANADIAN DRAWING COURSE AND THE PUBLIC SCHOOL HISTORY OF ENGLAND AND CANADA, RESPECTIVELY (22nd May, 1886).

- XV. ESTABLISHMENT OF A HIGH SCHOOL IN THE VILLAGE OF GEORGETOWN (22nd October, 1886).

- XVI. APPOINTMENT OF ROBERT BRIGHTON AS NIGHT WATCHMAN OF THE NORMAL SCHOOL, OTTAWA (12th November, 1886).

- XVII. WOODSTOCK HIGH SCHOOL TO RANK AS A COLLEGIATE INSTITUTE (26th November, 1886).

2. MINUTES OF DEPARTMENT.

- I. MANUAL OF HYGIENE AUTHORIZED FOR USE IN SCHOOLS (7th April, 1886).

- II. REGULATIONS RESPECTING MECHANICS' INSTITUTES AND ART SCHOOLS (7th May, 1886).

- III. APPOINTMENT OF WILLIAM ALEXANDER AS PUBLIC SCHOOL INSPECTOR OF THE TOWN OF LISTOWEL (19th May, 1886).

- IV. AUTHORIZATION OF THE PUBLIC SCHOOL HISTORY OF ENGLAND AND CANADA, AND THE REMOVAL OF ORRINGTON'S EPOCH PRIMER OF ENGLISH HISTORY, EDITH THOMPSON'S HISTORY OF ENGLAND, AND COLLIER'S HISTORY OF THE BRITISH EMPIRE, FROM THE AUTHORIZED LIST OF BOOKS AFTER 1ST JULY, 1877 (21st May, 1886).

- V. LITERATURE SELECTIONS FOR TEACHERS' EXAMINATIONS, 1887 (7th September, 1886).

- VI. ESTABLISHMENT OF TRAINING INSTITUTES AT KINGSTON, HAMILTON, GUELPH, AND STRATHROY (7th September, 1886).

- VII. MATTHEW MCKAY'S STATUS AS A TEACHER RESTORED (17th November, 1886).

3. CIRCULARS FROM THE MINISTER.

TEACHERS' READING COURSE.

The course of Study and Training prescribed for teachers by the Education Department is designed as a test of their ability to teach intelligently every subject on the Programme of studies for Public Schools. It is presumed that in obtaining the knowledge requisite for this purpose a desire has been implanted for higher attainments, and that in no case will the mind be allowed to lapse into a state of dullness or inactivity. The experience, however, of many of our best teachers shows that the tendency of their daily duties—largely because of their routine character—is to produce that mental lassitude so fatal to all intellectual culture and development.

By the establishment of Teachers' Institutes this tendency has been to a large extent corrected. They have, already, by means of mutual association and the friendly discussion of educational matters, stimulated many to greater exertions, and aroused the enthusiasm of even the most zealous members of the profession. But the Institute, valuable as it no doubt is, can do but little comparatively towards supplying that mental equipment which every teacher so much requires. Two or three days in the year should not suffice when the harvest is so great and the consequences of its not being garnered so disastrous to society. There is then but one alternative—the teacher must himself become a student. With him mental torpidity must be impossible. After setting apart as much time as may be necessary for rest and recreation, he should apply the remainder in preparing for the school room by private study. If he is to stimulate others, his own mind must be active.

In order to give definiteness to the efforts of teachers in this direction, I have arranged a Course of Reading, by means of which, while not ignoring professional obligations, they may carry on daily the work of self-culture, and at the same time learn to regard their vocation from a higher standpoint. The course extends over three years, and embraces pedagogics, science and literature. It can be mastered in the allotted time, without difficulty—one hour per day being quite sufficient. It will be observed that the books in the Professional Course are those already used at the Normal School and Training Institutes, so that by taking them up in the Reading Course, the work required for entering the higher grades of the profession, is simply prepared in advance.

As the Course is purely voluntary no examination will be held in connection with it. Should, however, the teachers of any Inspectoral Division agree to read the Course with this end in view, and should the County Board of Examiners make adequate provision for such examination, the Department would recognize by special certificate this additional element of professional culture. Such a certificate would no doubt be duly appreciated by trustees and the public generally, as it would entitle the holder to a strong claim upon their liberality. It will be the duty of the Directors of Teachers' Institutes to make such comments and give such directions to teachers in regard to the best methods of profiting by this Course as they may deem expedient.

In recommending to the profession the Course of Reading outlined, I do not wish to be regarded as imposing a task from which there is no advantage to be gained. The status of the teacher depends mainly upon his own exertions. To repress his individuality, or by Departmental restraints to endeavour to make each teacher the counterpart of every other, would be to secure uniformity by the sacrifice of power. I fully recognize that each member of the profession is a separate and distinct unit. To direct these separate units in such a way as to conserve their force for the public good and their own prosperity is the only object in view. Whether successful or not in this will depend upon their co-operation; the experiment is at least worth trying.

LIST OF BOOKS RECOMMENDED.

NOTE.—It would be well for teachers of each class to confine themselves to the Course of Professional Reading prescribed for their particular class. In the other subjects it is recommended to take one-third of the books in Science and Literature each year. The Directors of Institutes will take *Hopkins* and *Fitch* as the groundwork of some of their lectures, beginning in January, 1886.

PEDAGOGICS.

Third Class Teachers.

(Two books to be taken in one year in the order given).

1. Outlines of the Study of Man—*Hopkins*.
2. Lectures—*Fitch*.
3. Educational Reformers—*Quick*.
4. Psychology of Cognition—*Jardine*.
5. Education as a Science—*Bain*.
6. Education—*Spencer*.

These text-books are all on the Normal School Course for Second Class Teachers.

Second Class Teachers.

(Two books to be taken in one year in the order given).

1. Systems of Education—*J. Gill*.
2. Lectures on the History of Education—*Jos. Payne*.
3. The Action of Examinations—*H. Latham*.
4. School Management—*Joseph Landon*.
5. Teachers' Manual and Method of Organization—*R. Robinson*.
6. Culture demanded by Modern Life—*E. L. Youmans*.

The text-books named are all on the Professional Course for First Class Teachers.

First Class Teachers.

1. Psychology—*Sully*.
2. Greek Education—*Mahaffy*.
3. History of Pedagogy—*Hailman*.
4. Mental Physiology—*Carpenter*.
5. Education and Educators—*Kay*.
6. The Schoolmaster—*Ascham*.

PHYSICAL SCIENCE AND NATURAL HISTORY.

(Six books to be taken in one year in the order given).

1. The Fairy Land of Science—*Buckley*.
2. Ants, Bees and Wasps—*Sir John Lubbock*.
3. Sound Bodies for our Boys and Girls—*Blakie*.
4. Forms of Water—*Tyndall*.
5. Physiography—*Huxley*.
6. Heat as a Mode of Motion—*Tyndall*.
7. Methods of Study in Natural History—*Agassiz*.
8. Homes without Hands—*Woods*.
9. Elements of Physical Geography—*Geikie*.
10. Physical Geography of the Sea—*Maury*.
11. The Races of Man—*Peschel*.
12. Connection of the Physical Sciences—*Somerville*.
13. Common Sense of the Exact Sciences—*Clifford*.

14. Physical Forces—*Faraday*.
15. The Sun—*Proctor*.
16. Wild Animals, their Life and Habits—*Wolf*.
17. Flowers and their Pedigrees—*Grant Allen*.
18. Health—*Corfield*.

LITERATURE AND HISTORY.

(Eight books to be taken in one year in the order given).

1. Julius Cæsar—*Shakespeare*.
2. Every-day English—*R. G. White*.
3. Selections from Wordsworth—*Matthew Arnold*.
4. Milton and Wordsworth—*English Men of Letters*.
5. Industrial Biography—*Smiles*.
6. Short History of the English People—*Green*.
7. Montcalm and Wolfe—*Parkman*.
8. The English Constitution—*Bagehot*.
9. Macaulay's Life and Letters—*Trevelyan*.
10. Getting on in the World—*Matthews*.
11. Walks about Rome—*Hare*.
12. Words and their Uses—*R. G. White*.
13. Johnson's Lives of the Poets—*Matthew Arnold*.
14. Expansion of England—*Seeley*.
15. Words and Places—*Taylor*.
16. English Literature (condensed)—*Taine*.
17. The United Netherlands—*Motley*.
18. Oliver Cromwell—*Carlyle*.
19. Life of Johnson—*Boswell (Murray's Edition)*.
20. Language and Languages—*Farrar*.
21. Paradise Lost—*Milton*.
22. Life and Correspondence of Thomas Arnold—*A. P. Stanley*.
23. In Memoriam and the Princess—*Tennyson*.
24. Nicholas Nickleby—*Dickens*.

MEMORANDUM ON THE EXAMINATION IN PHYSICS.

For candidates for Third Class Certificates, the examination in Physics will be wholly directed to testing whether the candidates have clear ideas respecting some of the more obvious properties of matter and an accurate non-quantitative knowledge of the more elementary facts and laws of Physics. If any arithmetical questions are proposed, they will be very elementary. The teaching should be by observation and experiment.

Candidates for Second Class Certificates are supposed to continue their qualitative study of Physics, but to prepare them for the quantitative study of the subject, they are required by the Programme to take the most elementary part of the Kinematics of a point, the Dynamics (Kinetics and Statics) of a Particle, and the Statics of a Fluid. The examination papers for Second Class will consequently be composite, containing what have above been called qualitative questions and a few quantitative or mathematical problems, but the latter will be elementary and easy.

In teaching the subject there should, therefore, be a combination of the experimental and the rational methods, but less attention should be given to Statics than this subject has received in the past.

Toronto, January, 1886.

MEMORANDUM re ELECTION OF SCHOOL TRUSTEES.

With reference to your inquiry the Minister desires me to state that the law requires (Section 95-96) that the term of office of Trustees in towns and villages shall now be for two years instead of three years as heretofore, but does not direct specifically the mode

in which the change shall be effected. Following the principle laid down in Section 95, sub-section 2, the Minister recommends that the two Trustees who would under the former law have served a third year shall decide by lot which shall retire so that the new Board will consist of three newly elected Trustees, together with the two who are serving a second year and one of the Trustees elected for a third year. The lot may be cast as may be arranged.

TORONTO, January, 1886.

TO PUBLIC SCHOOL TRUSTEES, INSPECTORS AND TEACHERS.

By a Minute of the Education Department adopted 21st May, it was ordered :—

That the "Public School History of England and Canada," published by The Copp, Clark Company (Limited), at thirty-five cents per copy, be authorized for use in the Public and High Schools of Ontario, subject to the regulations of the said Department.

The Department further orders that "Creighton's Epoch Primer of English History" authorized in 1879, "Edith Thompson's History of England," authorized in 1877, and "Collier's History of the British Empire," authorized in 1867, be removed from the list of authorized books, on and after the first day of July, 1887.

TORONTO, May 1886.

CIRCULAR TO PUBLIC SCHOOL INSPECTORS.

SIR,—The Drawing Classes conducted at the Education Department, Toronto, during the last two summers will not be continued during the current year. It is nevertheless desirable in order still further to qualify teachers in this subject, that facilities of some kind should be offered for their self-improvement. Instead of the classes formerly taught at the Department it is now proposed to give a grant to each Inspectoral Division in which a class is formed for instruction in elementary drawing.

The conditions on which such classes may be formed are :—

1. The class must consist of at least ten persons holding a public school teacher's certificate.
2. The teacher in charge must possess a legal certificate to teach drawing; or be approved of by the Education Department.
3. At least thirty lessons of two hours each must be given.
4. Teachers who attend this course will be allowed to write at the Departmental examination in Drawing in April, 1887.
5. The Primary Drawing Course only shall be taught.
6. A grant of \$20 will be made for each class of ten pupils, but only one class will be paid for in any Inspectoral Division.]

Will you be good enough to inform the teachers of your Inspectorate of these proposals in order that they may make the necessary arrangements for organizing classes.

TORONTO, May 1st, 1886.

APPORTIONMENT OF LEGISLATIVE PUBLIC SCHOOL GRANT FOR 1886.

The apportionment of the Grant to the several Municipalities is based upon the latest Returns of Population for the year 1885, and the division between the Public and Separate Schools on the average attendance of that year, as reported by the Inspectors, Public School Boards, and Separate School Trustees respectively.

While the Separate Schools will receive their portion of the Grant direct from the Department, that of the Public Schools will be paid, according to this Schedule, through the respective County, City, Town and Village Treasurers.

The County Councils—whose duty it is to raise from the several townships in their counties a sum at least equal to the amounts respectively apportioned to each county—are reminded that *all the supporters of Roman Catholic Separate Schools are exempt* from any rate to be levied for this purpose.

TORONTO, May, 1886.

PUBLIC SCHOOL APPORTIONMENT TO COUNTIES FOR 1886, for which an assessment is to be made by the County Council, in the several townships in each county, sufficient to raise an amount at least equal to the amount apportioned to each county.

All Roman Catholic Separate School supporters are exempted from any rate for such purpose.

1. COUNTY OF BRANT.

Municipalities.	Apportionment.
Brantford	\$804 00
Burford	626 00
Dumfries, South	440 00
Oakland	107 00
Onondaga	173 00
Total	\$2150 00

2. COUNTY OF BRUCE.

Albemarle	\$133 00
Amabel	267 00
Arran	373 00
Brant	611 00
Bruce	493 00
Carrick	510 00
Culross	408 00
Eastnor	134 00
Elderslie	400 00
Greenock	386 00
Huron	517 00
Kincardine	480 00
Kinloss	328 00
Lindsay and St. Edmunds	66 00
Saugeen	251 00
Total	\$3557 00

3. COUNTY OF CARLETON.

Fitzroy	\$296 00
Gloucester	649 00
Goulbourn	356 00
Gower, North	380 00
Huntley	313 00
March	109 00
Marlborough	234 00
Nepean	742 00
Osgoode	540 00
Torbolton	150 00
Total	\$3766 00

4. COUNTY OF DUFFERIN.

Amaranth	\$426 00
Carleton Place	369 00
Luther, East	249 00
Melancthon	439 00
Mono	584 00
Mulmur	640 00
Total	\$2697 00

5. COUNTY OF ELGIN.

Municipalities.	Apportionment.
Aldborough	\$602 00
Bayham	480 00
Dorchester, South	213 00
Dunwich	480 00
Malahide	519 00
Southwold	557 00
Yarmouth	600 00
Total	\$3451 00

6. COUNTY OF ESSEX.

Anderdon	\$237 00
Colchester, North	163 00
Colchester, South	319 00
Gosfield	455 00
Maidstone	341 00
Malden, including new R. C. S. B. Malden	130 00
Mersea	455 00
Rochester	269 00
Sandwich, East	569 00
" West	323 00
Tilbury, West	390 00
Total	\$3651 00

7. COUNTY OF FRONTENAC.

Barrie	\$ 62 00
Bedford	178 00
Clarendon and Miller	115 00
Hinchinbrooke	161 00
Howe Island	53 00
Kennebec	139 00
Kingston	366 00
Loughborough	252 00
Olden	111 00
Oso	102 00
Palmerston and Canoto	94 00
Pittsburg	333 00
Portland	298 00
Storrington	272 00
Wolfe Island	157 00
Total	\$2693 00

8. COUNTY OF GREY.

Artemesia	\$476 00
Bentinck	598 00
Collingwood	529 00
Derby	251 00

PUBLIC SCHOOL APPORTIONMENT TO COUNTIES—*Continued.*8. COUNTY OF GREY—*Continued.*

<i>Municipalities.</i>	<i>Apportionment.</i>
Egremont	453 00
Euphrasia	398 00
Glenelg	433 00
Holland	563 00
Keppel	413 00
Normanby	583 00
Osprey	466 00
Proton	370 00
Sarawak	130 00
St. Vincent	466 00
Sullivan	449 00
Sydenham	473 00
Total	\$7051 00

9. COUNTY OF HALDIMAND.

Canborough	\$134 00
Cayuga, North	229 00
South	109 00
Dunn	108 00
Mculton	226 00
Oneida	267 00
Rainham	239 00
Seneca	306 00
Sherbrooke	54 00
Walpole	538 00
Total	\$2210 00

10. COUNTY OF HALIBURTON.

Anson and Hindon	\$ 34 00
Cardiff	69 00
Clyde, Bruton, Dudley, Dysart, Har-	
court, Harburn, Eyre, Guilford, Have-	
lock, etc.	121 00
Glamorgan	54 00
Lutterworth	51 00
Minden	143 00
Monmouth	42 00
Snowdon	99 00
Stanhope, Sherbourne and McClintock ..	63 00
Total	\$676 00

11. COUNTY OF HALTON.

Esquesing	\$570 00
Nassagaweya	358 00
Nelson	420 00
Trafalgar	527 00
Total	\$1875 00

12. COUNTY OF HASTINGS.

Carlow and Mayo	\$113 00
Elzevir and Grimsthorpe	150 00
Faraday and Dunganon	142 00
Hungerford	519 00
Huntingdon	297 00
McClure, Wicklow and Bangor	88 00
Herschel and Monteaagle	157 00

12. COUNTY OF HASTINGS—*Continued.*

<i>Municipalities.</i>	<i>Apportionment.</i>
Madoc	351 00
Marmora and Lake	252 00
Rawdon	383 00
Sidney	512 00
Thurlow	582 00
Tudor, Limerick and Cashel	173 00
Wollaston	84 00
Tyendinaga	573 00
Total	\$4371 00

13. COUNTY OF HURON.

Ashfield	\$467 00
Colborne	306 00
Goderich	346 00
Grey	501 00
Hay	446 00
Howick	652 00
Hullett	375 00
McKillop	425 00
Morris	411 00
Stanley	315 00
Stephen	442 00
Tuckersmith	386 00
Turnberry	344 00
Usborne	329 00
Wawanosh, East	276 00
West	267 00

Total **\$6288 00**

14. COUNTY OF KENT.

Camden	\$346 00
Chatham	613 00
Dover	448 00
Harwich	609 00
Howard	453 00
Orford	383 00
Raleigh	487 00
Romney	133 00
Tilbury, East	356 00
Zone	159 00

Total **\$3987 00**

15. COUNTY OF LAMBTON.

Bosanquet	\$358 00
Brooke	386 00
Dawn	251 00
Enniskillen	319 00
Euphemia	317 00
Moore	574 00
Plympton	516 00
Sarnia	267 00
Sombra	351 00
Warwick	453 00

Total **\$3792 00**

PUBLIC SCHOOL APPORTIONMENT TO COUNTIES—*Continued.*

16. COUNTY OF LANARK.

<i>Municipalities.</i>	<i>Apportionment.</i>
Bathurst	\$333 00
Beckwith	215 00
Burgess, North	118 00
Dalhousie and Sherbrooke, North	268 00
Darling	82 00
Drummond	285 00
Elmsley, North	139 00
Lanark	236 00
Lavant	78 00
Montague	291 00
Pakenham	234 00
Ramsay	327 00
Sherbrooke, South	112 00
Total:	\$2718 00

17. COUNTY OF LEEDS.

Bastard and Burgess, South	\$408 00
Crosby, North	195 00
Crosby, South	234 00
Elizabethtown	667 00
Elmsley, South	110 00
Escott, Front	152 00
Kitley	275 00
Leeds and Lansdowne, Front	414 00
Rear	307 00
Yonge and Escott, Rear	257 00
Yonge, Front	181 00
Total:	\$3200 00

18. COUNTY OF GRENVILLE.

Augusta	\$615 00
Edwardsburg	523 00
Gower, South	111 00
Oxford Rideau	410 00
Wolford	254 00
Total:	\$1913 00

19. COUNTY OF LENNOX AND
ADDINGTON.

Adolphustown	\$ 89 00
Amherst Island	136 00
Anglesea, Effington and Kaladar	124 00
Camden, East	639 00
Denbigh, Abinger and Ashby	83 00
Ernestown	501 00
Fredericksburg, North	209 00
South	169 00
Richmond	328 00
Sheffield	264 00
Total:	\$2542 00

20. COUNTY OF LINCOLN.

Caistor	\$254 00
Clinton	267 00
Gainsborough	346 00

20. COUNTY OF LINCOLN—*Continued.*

<i>Municipalities.</i>	<i>Apportionment.</i>
Grantham	267 00
Grimsby, North	119 00
South	184 00
Louth	224 00
Niagara	226 00
Total:	\$1887 00

21. COUNTY OF MIDDLESEX.

Adelaide	\$388 00
Biddulph	307 00
Caradoc	638 00
Delaware	214 00
Dorchester, North	468 00
Ekfrid	348 00
Lobo	347 00
London	1093 00
McGillivray	496 00
Metcalfe	227 00
Mosa	328 00
Nissouri, West	453 00
Westminster	995 00
Williams, East	293 00
West	199 00
Total:	\$6794 00

22. COUNTY OF NORFOLK.

Charlotteville	\$478 00
Houghton	241 00
Middleton	428 00
Townsend	557 00
Walsingham	629 00
Windham	515 00
Woodhouse	319 00
Total:	\$3167 00

23. COUNTY OF NORTHUMBERLAND.

Alnwick	\$139 00
Brighton	379 00
Craunahe	349 00
Haldimand	601 00
Hamilton	552 00
Monaghan, South	133 00
Murray	387 00
Percy	390 00
Seymour	413 00
Total:	\$3383 00

24. COUNTY OF DURHAM.

Cartwright	\$282 00
Cavan	421 00
Clarke	607 00
Darlington	617 00
Hope	559 00
Manvers	423 00
Total:	\$2909 00

PUBLIC SCHOOL APPORTIONMENT TO COUNTIES—*Continued.*

25. COUNTY OF ONTARIO.

<i>Municipalities.</i>	<i>Apportionment.</i>
Brock	\$542 00
Mara	330 00
Pickering	859 00
Rama	131 00
Reach	576 00
Scott	293 00
Scugog Island	71 00
Thorah	196 00
Uxbridge	490 00
Whitby, East	400 00
Whitby	373 00
Total	\$4261 00

26. COUNTY OF OXFORD.

Blandford	\$224 00
Blenheim	665 00
Dereham	489 00
Nissouri, East	333 00
Norwich, North	280 00
" South	359 00
Oxford, North	173 00
" East	251 00
" West	304 00
Zorra, East	468 00
" West	343 00
Total	\$3889 00

27. COUNTY OF PEEL.

Albion	\$418 00
Caledon	508 00
Chinguacousy	637 00
Gore of Toronto	144 00
Toronto	682 00
Total	\$2389 00

28. COUNTY OF PERTH.

Blanchard	\$384 00
Downie	463 00
Easthope, North	318 00
" South	225 00
Ellice	335 00
Elma	493 00
Fullarton	320 00
Hibbert	360 00
Logan	373 00
Mornington	400 00
Wallace	410 00
Total	\$4081 00

29. COUNTY OF PETERBOROUGH.

Asphodel	\$206 00
Belmont and Methuen	230 00
Burleigh, Anstruther and Chandos	145 00
Douro	266 00
Dummer	267 00

29. COUNTY OF PETERBOROUGH—*Con.*

<i>Municipalities.</i>	<i>Apportionment.</i>
Ennismore	122 00
Galway and Cavendish	95 00
Harvey	134 00
Monaghan, North	101 00
Otonabee	461 00
Smith	361 00
Total	\$2388 00

30. COUNTY OF PRESCOTT.

Alfred	\$309 00
Caledonia	171 00
Hawkesbury, East	317 00
Hawkesbury, West (\$31 arrears)	259 00
Longueuil	142 00
Plantaganet, North	453 00
Plantaganet, South, including R. C., No. 7	332 00
Total	\$1983 00

31. COUNTY OF RUSSELL.

Cambridge	\$166 00
Clarence	642 00
Cumberland	459 00
Russell	381 00
Total	\$1648 00

32. COUNTY OF PRINCE EDWARD.

Ameliasburg	\$396 00
Athol	172 00
Hallowell	404 00
Hillier	232 00
Marysburg, North	190 00
" South	259 00
Sophasburg	362 00
Total	\$2015 00

33. COUNTY OF RENFREW.

Admaston	\$282 00
Algona, South	94 00
Alice and Fraser	210 00
Bagot and Blithfield	121 00
Brougham	58 00
Bromley	210 00
Brudenell and Lynedoch	145 00
Grattan	146 00
Griffith and Matawatchan	78 00
Hagarty, Jones, Sherwood, Richards and Burns	206 00
Head, Clara and Maria	40 00
Horton	161 00
McNab	438 00
Pembroke	92 00
Petawawa and McKay	52 00
Radeliffe and Raglan	94 00
Rolph, Wylie and Buchanan	89 00
Ross	306 00

PUBLIC SCHOOL APPORTIONMENT TO COUNTIES—*Continued.*33. COUNTY OF RENFREW—*Continued.*

<i>Municipalities.</i>	<i>Apportionment.</i>
Sebastopol	79 00
Stafford	104 00
Westmeath	373 00
Wilberforce and Algona, North	269 00
Total	\$3647 00

34. COUNTY OF SIMCOE.

Adjala	\$245 00
Cardwell	53 00
Eesa	522 00
Flos	368 00
Gwillimbury, West	353 00
Humphrey	44 50
Innisfil	700 00
Medonte	352 00
Monck	79 00
Morrison	86 00
Muskoka	121 00
Nottawasaga	756 00
Orillia and Matchedash	414 00
Oro	514 00
Sunnisdale	346 00
Tay	324 00
Tiny (\$133 Arrears), including R. C. 2, Tiny	540 00
Tecumseth	627 00
Toscorontio	146 00
Vespra	357 00
Watt	106 00
Wood and Medora	97 00
Total	\$7150 00

35. COUNTY OF STORMONT.

Cornwall	\$433 00
Finch	340 00
Osnabruck	658 00
Roxborough	497 00
Total	\$1928 00

36. COUNTY OF DUNDAS.

Matilda	\$551 00
Mountain	390 00
Williamsburg	518 00
Winchester	537 00
Total	\$1996 00

37. COUNTY OF GLENGARRY.

Charlottenburg	\$675 00
Kenyon	624 00
Lancaster	504 00
Lochiel	478 00
Total	\$2281 00

38. COUNTY OF VICTORIA.

<i>Municipalities.</i>	<i>Apportionment.</i>
Bexley	\$ 96 00
Carden and Dalton	155 00
Draper and Oakley	168 00
Eldon	374 00
Emily	333 00
Fenelon	357 00
Laxton, Digby and Longford	109 00
Macaulay	108 00
McLean and Ridout	90 00
Mariposa	622 00
Ops	401 00
Ryde	85 00
Somerville	168 00
Stephenson	107 00
Verulam	270 00
Total	\$3443 00

39. COUNTY OF WATERLOO.

Dumfries, North	\$338 00
Waterloo	841 00
Wellesley	551 00
Wilmot	605 00
Woolwich	677 00
Total	\$3012 00

40. COUNTY OF WELLAND.

Bertie	\$506 00
Crowland	159 00
Humberstone	348 00
Pelham	294 00
Stamford	243 00
Thorold	266 00
Wainfleet	388 00
Willoughby	133 00
Total	\$2337 00

41. COUNTY OF WELLINGTON.

Arthur	\$409 00
Eramosa	413 00
Erin	519 00
Garafraxa, West	413 00
Guelph	317 00
Luther, West	226 00
Maryborough	440 00
Minto	463 00
Nichol	257 00
Peel	468 00
Pilkington	227 00
Fuslinch	427 00
Total	\$4579 00

PUBLIC SCHOOL APPORTIONMENT TO COUNTIES—*Continued.*

42. COUNTY OF WENTWORTH.

<i>Municipalities.</i>	<i>Apportionment.</i>
Ancaster	\$559 00
Barton	533 00
Beverley	626 00
Binbrook	213 00
Flamborough, East	321 00
“ West	383 00
Glanford	226 00
Saltfleet	318 00
Total	\$3179 00

43. COUNTY OF YORK.

Etobicoke	\$390 00
Georgina	308 00
Gwillimbury, East	460 00
“ North	251 00

43. COUNTY OF YORK.—*Continued.*

<i>Municipalities.</i>	<i>Apportionment.</i>
King	759 00
Markham	694 00
Scarborough	507 00
Vaughan	671 00
Whitchurch	531 00
York	1171 00
Total	\$5742 00

44. DISTRICTS.

Algoma, exclusive of Port Arthur and Rat Portage, but including Roman Catholic Separate Schools	\$1500 00
Nipissing, including R. C. Sep. Schools ..	500 00
Parry Sound, “ “ ..	1000 00
Total	\$3000 00

APPORTIONMENT TO ROMAN CATHOLIC SEPARATE SCHOOLS FOR 1886, PAYABLE THROUGH THIS DEPARTMENT.

<i>School Sections.</i>	<i>Apportionment.</i>
Adjala	10
Alfred	3
" 7 (with 8, Plantagenet, South)	23 00
"	7
Anderdon	3 & 4
Artemesia, 6 (1), with 7, Glenelg	6 00
"	6(2)
Arthur	6
Asphodel	4
Biddulph	6
" 9 (with 1, McGillivray)	9 00
Bonfield 1, (included in grant to Nipissing District)	
Brighton	1(15)
Burgess, North	6
Cambridge	6 & 7
Caledonia	3, 4, & 10
Carrick	1
"	2
"	14
Charlottenburg	15
Colchester, North	7
Cornwall	1
"	16
Crosby, North	4
Downie	9
Edwardsburg	2
Ellice	7
Finch	5
Flamborough, West	2
Glenelg	5
" 7, (with 6, Artemesia (1))	6 00
Gloucester	4, 5, & 12
"	14
Grattan, etc.	1
Haldimand	21
Harwich	9
Hawkesbury, East	2
"	4
"	7
"	10
"	12
"	15
"	16
Holland	3
Hullett	2
Innisfil 12, (with town of Barrie)	11 00
Kingston	8
Kitley	7
Lancaster	14
Lochiel	12
Maidstone 4, (with 2, Rochester)	29 00
Malden A	3
" B 3, (included in grant to Town'ip)	70 00
Mara	3
March	3
Mattawa, 1 (included in grant to District of Nipissing)	68 00
	25 00

<i>School Sections.</i>	<i>Apportionment.</i>
Moore	3, 4, & 5
Mornington	4
McGillivray 1, (with 9, Biddulph)	22 00
McKillop	1
Nepean	7
"	15
Nichol	1
Nipissing R. C. S. S. (included in grant to District of Parry Sound)	33 00
Normanby	5
"	10
Osgoode	1
"	15
Otonabee	10
Peel	8
"	12
Percy	5
Percy, 12 (with 12 Seymour)	18 00
Plantagenet, North	9
" South 7, included in grant to Township	6 00
" South, 8 (with 7 Alfred)	30 00
Proton	6
Raleigh	4
"	5
"	6
Richmond	10 & 17
Rochester, 2 (with 4 Maidstone)	38 00
Roxboro'	12
Seymour, 12 (with 12 Percy)	48 00
Sheffield	5
Sombra	5
Springer, 1 (included in grant to District of Nipissing)	35 00
Stafford	2
Stephen	6
Sydenham	7
"	14 (2)
Tilbury, West 1 (with 1 Tilbury East)	19 00
" East, 1 (with 1 Tilbury West)	23 00
Tiny 2, included in grant to Township	42 00
Toronto Gore	6
Vespra	7
Waterloo	13
Wawanosh, West	1
Wellesley	5
"	9 & 10
"	11
"	12
Westminster	13
Williams, West	10
Wilmot	15 1/2
Windham	8
Wolfe Island	1
"	2
"	4
Yonge and Escott R	4
York	1

APPORTIONMENT TO CITIES, TOWNS AND VILLAGES FOR 1886.

	Public Schools.	Separate Schools.	Total.
CITIES.	\$ c.	\$ c.	\$ c.
Belleville	1085 00	270 00	1355 00
Brantford	1441 00	179 00	1620 00
Guelph	1125 00	234 00	1359 00
Hamilton	4519 00	814 00	5333 00
Kingston	1405 00	474 00	1879 00
London	2994 00	479 00	3473 00
Ottawa	1997 00	2374 00	4371 00
St. Catharines	998 00	319 00	1317 00
St. Thomas	1311 00	158 00	1469 00
Stratford	952 00	217 00	1169 00
Toronto	12640 00	2266 00	14906 00
Total	\$30467 00	\$7784 00	\$38251 00
TOWNS.			
Almonte	\$290 00	\$ 91 00	\$381 00
Amherstburg	156 00	164 00	320 00
Barrie	488 00	94 00	582 00
Berlin	550 00	102 00	652 00
Blenheim	194 00		194 00
Bothwell	132 00		132 00
Bowmanville	478 00		478 00
Brampton	435 00		435 00
Brockville	868 00	256 00	1124 00
Chatham	912 00	173 00	1085 00
Clinton	353 00		353 00
Cobourg	497 00	170 00	667 00
Collingwood	718 00		718 00
Cornwall	337 00	382 00	719 00
Dresden	243 00		243 00
Dundas	342 00	155 00	497 00
Durham	139 00		139 00
Galt	726 00	74 00	800 00
Goderich	476 00	59 00	535 00
Harriston	252 00		252 00
Ingersoll	497 00	67 00	564 00
Kincardine	365 00		365 00
Lindsay	435 00	263 00	698 00
Listowel	359 00		359 00
London, East	600 00		600 00
Meaford	254 00		254 00
Mitchell	312 00		312 00
Milton	169 00		169 00
Mount Forest	278 00		278 00
Napanee	443 00		443 00
Newmarket	211 00	41 00	252 00
Niagara	185 00		185 00
Niagara Falls	219 00	70 00	289 00
Oakville	190 00	35 00	225 00
Orangeville	415 00		415 00
Orillia	410 00	96 00	506 00
Oshawa	497 00	76 00	573 00
Owen Sound	582 00	35 00	617 00
Palmerston	226 00		226 00
Parkhill	173 00	33 00	206 00
Paris	376 00	68 00	444 00
Pembroke	239 00	201 00	440 00
Penetanguishene	231 00		231 00
Perth	390 00	102 00	492 00
Peterborough	662 00	418 00	1080 00
Petrolia	384 00		384 00
Picton	315 00	51 00	366 00
Port Arthur	503 00	273 00	776 00
Port Hope	723 00		723 00

APPORTIONMENT TO CITIES, ETC.—*Continued.*

	Public Schools.	Separate Schools.	Total.
TOWNS— <i>Continued.</i>	\$ c.	\$ c.	\$ c.
Prescott	240 00	135 00	375 00
Rat Portage	41 00	19 00	60 00
Ridgetown	200 00		200 00
Sandwich	152 00		152 00
Sarnia	641 00	103 00	744 00
Seaforth	338 00		338 00
Simcoe	349 00		349 00
Smith's Falls	297 00		297 00
St. Mary's	401 00	52 00	453 00
Strathroy	482 00		482 00
Thorold	256 00	94 00	350 00
Tilsonburg	268 00		268 00
Trenton	386 00	214 00	600 00
Uxbridge	267 00		267 00
Walkerton	376 00		376 00
Waterloo	329 00		329 00
Welland	286 00		286 00
Whitby	337 00	45 00	382 00
Windsor	978 00		978 00
Wingham	263 00		263 00
Woodstock	841 00		841 00
Total	\$26957 00	\$4211 00	\$31168 00
INCORPORATED VILLAGES.			
Acton	\$124 00		\$124 00
Ailsa Craig	97 00		97 00
Alexandria	17 00	112 00	129 00
Alliston	215 00		215 00
Alvinston	123 00		123 00
Arkona	76 00		76 00
Arnprior	195 00	114 00	309 00
Arthur	97 00	60 00	157 00
Ayr	135 00		135 00
Ashburnham	186 00		186 00
Aurora	245 00		245 00
Aylmer	252 00		252 00
Bath	70 00		70 00
Bayfield	76 00		76 00
Beamsville	92 00		92 00
Beaverton	124 00		124 00
Beeton	96 00		96 00
Belle River	96 00		96 00
Blyth	119 00		119 00
Bobcaygeon	111 00		111 00
Bolton	95 00		95 00
Bracebridge	185 00		185 00
Bradford	124 00		124 00
Brighton	242 00		242 00
Brussels	170 00		170 00
Burlington	140 00		140 00
Caledonia	120 00		120 00
Campbellford	226 00		226 00
Cannington	128 00		128 00
Cardinal	84 00		84 00
Carleton Place	391 00		391 00
Cayuga	106 00		106 00
Chesley	173 00		173 00
Chippewa	84 00		84 00
Clifford	80 00		80 00
Colborne	119 00		119 00
Deseronto	294 00		294 00
Drayton	105 00		105 00
Dunnville	221 00		221 00
Elora	144 00	44 00	188 00

APPORTIONMENT TO CITIES, ETC.—*Continued.*

	Public Schools.	Separate Schools.	Total.
INCORPORATED VILLAGES.— <i>Continued.</i>	\$ c.	\$ c.	\$ c.
Embro.....	71 00		71 00
Erin.....	72 00		72 00
Essex Centre.....	158 00		158 00
Exeter.....	230 00		230 00
Fenelon Falls.....	175 00		175 00
Fergus.....	206 00	14 00	220 00
Forest.....	202 00		202 00
Fort Erie.....	101 00		101 00
Gananoque.....	386 00		386 00
Garden Island.....	64 00		64 00
Georgetown.....	209 00		209 00
Glencoe.....	107 00		107 00
Gravenhurst.....	152 00		152 00
Grimaby.....	96 00		96 00
Hastings.....	67 00	39 00	106 00
Hawkesbury.....	194 00		194 00
Hespeler.....	143 00		143 00
Holland Landing.....	61 00		61 00
Iroquois.....	133 00		133 00
Kemptville.....	150 00		150 00
Kingsville.....	128 00		128 00
Lakefield.....	144 00		144 00
Lanark.....	95 00		95 00
Leamington.....	173 00		173 00
L'Orignal.....	105 00		105 00
London West.....	219 00		219 00
Lucan.....	127 00		127 00
Lucknow.....	181 00		181 00
Madoc.....	136 00		136 00
Markham.....	135 00		135 00
Merrickville.....	111 00		111 00
Merritton.....	175 00	52 00	227 00
Midland.....	213 00		213 00
Millbrook.....	144 00		144 00
Milverton.....	91 00		91 00
Morrisburg.....	241 00		241 00
Newboro'.....	47 00		47 00
Newburgh.....	94 00		94 00
Newbury.....	66 00		66 00
Newcastle.....	119 00		119 00
New Edinburg.....	155 00		155 00
New Hamburg.....	174 00		174 00
Niagara Falls South.....	125 00		125 00
Norwich.....	174 00		174 00
Norwood.....	119 00		119 00
Oilsprings.....	81 00		81 00
Omersee.....	90 00		90 00
Paisley.....	143 00		143 00
Parkdale.....	394 00		394 00
Pele Island.....	40 00		40 00
Point Edward.....	206 00		206 00
Portsmouth.....	71 00	35 00	106 00
Port Colborne.....	126 00	39 00	165 00
Port Dalhousie.....	102 00	31 00	133 00
Port Dover.....	136 00		136 00
Port Elgin.....	227 00		227 00
Port Perry.....	244 00		244 00
Port Stanley.....	70 00		70 00
Preston.....	204 00		204 00
Renfrew.....	146 00	86 00	232 00
Richmond.....	53 00		53 00
Richmond Hill.....	119 00		119 00
Sault Ste. Marie.....	249 00		249 00
Shelburne.....	142 00		142 00
Southampton.....	148 00		148 00
Springfield.....	61 00		61 00

APPORTIONMENT TO CITIES, ETC.—*Continued.*

	Public Schools.	Separate Schools.	Total.
	\$ c.	\$ c.	\$ c.
INCORPORATED VILLAGES—<i>Continued.</i>			
Stayner.....	136 00		136 00
Stirling.....	110 00		110 00
Stouffville.....	126 00		126 00
Streetsville.....	102 00		102 00
Tara.....	89 00		89 00
Teeswater.....	142 00		142 00
Thamesville.....	94 00		94 00
Thedford.....	98 00		98 00
Tiverton.....	85 00		85 00
Tottenham.....	72 00		72 00
Vienna.....	56 00		56 00
Wallaceburg.....	174 00	36 00	210 00
Wardsville.....	57 00		57 00
Waterdown.....	94 00		94 00
Waterford.....	160 00		160 00
Watford.....	146 00		146 00
Wellington.....	74 00		74 00
Weston.....	99 00	34 00	133 00
Wiarton.....	167 00		167 00
Woodbridge.....	142 00		142 00
Woodville.....	69 00		69 00
Wyoming.....	97 00		97 00
Wroxeter.....	59 00		59 00
Total.....	\$17745 00	\$696 00	\$18441 00

SUMMARY OF APPORTIONMENT FOR 1886.

	Public Schools.	Separate Schools.	Total.
COUNTIES.	\$ c.	\$ c.	\$ c.
Brant	2150 00		2150 00
Bruce	5357 00	128 00	5485 00
Carleton	3766 00	367 00	4133 00
Dufferin	2697 00		2697 00
Elgin	3451 00		3451 00
Essex	3651 00	214 00	3865 00
Frontenac	2693 00	106 00	2799 00
Grey	7051 00	205 00	7256 00
Haldimand	2210 00		2210 00
Haliburton	676 00		676 00
Halton	1875 00		1875 00
Hastings	4371 00		4371 00
Huron	6288 00	111 00	6399 00
Kent	3987 00	184 00	4171 00
Lambton	3792 00	53 00	3845 00
Lanark	2718 00	9 00	2727 00
Leeds	3200 00	37 00	3237 00
Grenville	1913 00	19 00	1932 00
Lennox and Addington	2542 00	37 00	2579 00
Lincoln	1887 00		1887 00
Middlesex	6794 00	97 00	6891 00
Norfolk	3167 00	21 00	3188 00
Northumberland	3883 00	62 00	3945 00
Durham	2909 00		2909 00
Ontario	4261 00	68 00	4329 00
Oxford	3889 00		3889 00
Peel	2389 00	15 00	2404 00
Perth	4081 00	72 00	4153 00
Peterborough	2388 00	44 00	2432 00
Prescott	1983 00	350 00	2333 00
Russell	1648 00	48 00	1696 00
Prince Edward	2015 00		2015 00
Renfrew	3647 00	115 00	3762 00
Simcoe	7150 00	60 00	7210 00
Stormont	1928 00	197 00	2125 00
Dundas	1996 00		1996 00
Glengarry	2281 00	74 00	2355 00
Victoria	3443 00		3443 00
Waterloo	3012 00	245 00	3257 00
Welland	2337 00		2337 00
Wellington	4579 00	112 00	4691 00
Wentworth	3179 00	20 00	3199 00
York	5742 00	53 00	5795 00
Districts—			
(a) Algoma	1500 00		1500 00
(b) Nipissing	500 00		500 00
(c) Parry Sound	1000 00		1000 00
Total, \$3,000			
	147476 00	3123 00	150599 00
GRAND TOTALS.			
Counties and Districts	147476 00	3123 00	150599 00
Cities	30467 00	7784 00	38251 00
Towns	28957 00	4211 00	31168 00
Villages	17745 00	696 00	18441 00
Grand Total	222645 00	15814 00	238459 00

TO HEAD MASTERS OF HIGH SCHOOLS AND COLLEGIATE INSTITUTES.

DEAR SIR :—As my answers to a number of enquiries made since the reopening of the High Schools are of general interest, I have deemed it advisable to embody them in a circular, as follows :—

1. The Senate of Toronto University having changed the selection from Shakespeare, previously announced for Matriculation, the Literature for First Class Teachers for 1886-7, in addition to Thomson's Seasons and Southey's Life of Nelson as prescribed, will be "The Merchant of Venice."

2. Hereafter, as for 1886-1887, the Literature Texts for Third Class Certificates will be taken from the authorized High School Reader ; and, as in the case of those for the Entrance Examination, about half for one examination will be repeated for that next ensuing. Head-Masters are required to use these selections in their first forms (see Reg. 98. Form I, 5) ; and, to enable them to do so with the utmost advantage, some of the selections are, and will be, especially adapted for pupils just promoted from the Fourth Class of the Public Schools.

3. A candidate may write for a Second Class Non-professional Certificate without previously taking a Third Class Non-Professional Certificate.

4. While there is nothing in the Regulations to prevent a candidate from writing for a Second and a Third Class Non-professional Certificate in the same year, it is, in most cases, undesirable that he should do so, and Head-Masters may (see Reg. 96) refuse to prepare the same candidate for both examinations in the same year, should the circumstances of his school or the capacity of the candidate render this course advisable.

5. Two examiners will hereafter be required to set each paper, both for the Entrance Examination to High Schools and for Teachers' Certificates.

6. Candidates for Teachers' Certificates will be allowed a choice of questions within certain limitations, that is to say, while an examination paper may consist of twelve questions, the maximum marks may be obtained by answering eight or nine. This will give greater freedom to the examiner and the teacher, and reduce the risk of failure on the part of a candidate who understands the subject.

7. The examination on the Principles of Reading for both Second and Third Class Certificates will be based on the Introduction to the High School Reader—the questions for Second Class being distinct from those for Third Class, and of a more comprehensive character. For the way in which it is intended that the teacher should use this Introduction, I refer you to the preface of the Reader and to the Introduction itself.

8. The examination papers in English Grammar will be constructed in accordance with the view that, while the subject is a science which is capable of important practical applications, it has a distinct value as a means of mental training, to which the practical applications are subordinate in a High School course of study. Less importance will be attached to formal parsing and analysis than has hitherto been usual, and candidates will be expected to be able to state the principles of the subject, as far as possible in their own language, and to show in other ways that they have not attempted to substitute for real learning the *memoriter* recitation of definitions and rules.

9. A general literary acquaintance with scientific facts is undoubtedly of practical value, and the High School programme recognizes this ; but the main reason for the introduction of the study of Science into our schools is the mental discipline to be obtained therefrom. The training of the reasoning powers and the acquisition of the scientific habit of mind are the objects with special reference to which the method of instruction should be chosen, and these will also be the main objects of the examination papers. The recent half-yearly reports have shown me that, with few exceptions, the High Schools are now fairly equipped with scientific apparatus ; this summer an opportunity was afforded High School Masters of obtaining a practical knowledge of Botany ; and the examiners will assume henceforth that Chemistry and Physics have been taken up experimentally and Botany practically. In this connection I would remind you that *Reynolds' Experimental Chemistry* has been prescribed for the teacher's use only, to show how the course is limited and to supply him with a guide as to method. It is not

expected that either teacher or pupil will perform all the experiments contained in the book. Others may be substituted that illustrate the same principles; some may be performed by the teacher in the class, alone or with the pupils' assistance; and others again may be performed by the pupil alone, the results being reported to the teacher and discussed in the class. The importance of the subject under consideration and the time at the class's disposal will of course determine how many experiments should be taken up. I may add that the examiners for Second Class Certificates will assume only such a knowledge of Chemistry as may be acquired in one year's course.

10. As regards English Literature, both prose and poetry, the teacher's great object should be to lead his pupils to understand and appreciate fully the author's meaning. This involves, of course, the careful study of the form in which the author expresses himself. Paraphrasing; the different nature of synonyms; the explanation of allusions; the discussion of proper names and of historical points; the study of figurative language, of paragraph construction, and of metrical form—should all be conducted primarily with this object in view. The biography of the writers and the history of the periods in which they lived should be taken up specially in the Literature class, only in so far as they have a bearing upon the meaning or the form of the texts. To secure as far as possible the permanence of the pupil's impressions, he should be required to memorize carefully the finest passages in both the prose and the poetry. The prose selections, however, for all grades of certificates, are intended to serve an additional purpose. Appreciation should beget imitation, and every High School pupil should aim at becoming at least a fair writer of English prose. The prose selections should be studied in the Composition classes as models of style, and the merits and, it may be, the defects, of the author's paragraphs and sentences, and the influence of the same upon his style should be carefully noted. Indeed, to obtain the utmost advantage from the study of Literature, the teacher of that subject should also be the teacher of Composition.

11. The subject for the themes for Composition on the Composition papers for Third, Second, and First C. Certificates, will be based on the prose selections for these Certificates respectively.

12. The paper in Algebra will contain about an equal number of questions in *pure* and *applied* Algebra; respecting Geography it is to be understood that the course for Second Class Teachers includes that prescribed for Third Class, according to the usual practice.

13. It is intended to adopt for candidates for Second Class Certificates the papers for Pass Matriculation set by the University examiners in Latin, French, and German; papers for the Third Class candidates will be set by the Departmental examiners in these subjects as formerly.

As many valuable hints are given by the High School Inspectors in regard to methods of teaching and the objects to be aimed at in the study of the various subjects in the High School Course, I would respectively refer you to my Report of last year, 1885, for fuller details than can conveniently be given in this circular.

TORONTO, September, 1886.

TO COUNTY INSPECTORS.

DEAR SIR:—I think the time has come when concerted effort should be made to introduce vocal music into all the public schools. Although the course of public instruction in the Provincial Normal and Model Schools is designed to qualify teachers in training for teaching this subject, still the limited number of pupils in the public schools who, according to my report, received instruction from year to year, has impressed me with the necessity of asking Inspectors specially to urge it upon the attention of teachers in their various inspectorates. Out of a registered school population of 466,917 only 150,510 were reported as studying music.

Be good enough to supply the information asked for below at your earliest convenience, in order that I may ascertain more accurately what is done, with a view to consider more fully the best remedy to apply.

State number of schools in your inspectorate in which vocal music is studied and supply following details :—

1. The aggregate number of pupils taught.

.....

2. What proportion receive regular lessons in singing by note ?

.....

3. What is the average time per week devoted to music in the classes in which singing by note is practised ?

.....

4. How many classes are taught by special teachers of music ?

.....

5. How many classes are taught by the regular teachers ?

.....

SYSTEMS.

6. Are any classes taught by the tonic-sol-fa method ?

.....

7. What are the principal music text books used ?

.....

8. Would you approve of making the study of music compulsory in the County Model Schools ?

.....

TORONTO, November, 1886.

TEACHERS' INSTITUTES, 1887.

The success which has attended the Institutes held during the year and the resolutions passed expressing approval of the services rendered by the Directors are very gratifying, and strengthen the conviction that the teachers of the Province appreciate the object for which they were originally established. Still it is to be remembered that their success must continue to depend mainly upon the assistance and active co-operation of Inspectors and Teachers—the object of the Department being to assist, not to supersede local effort.

Inspectors are requested to see that due notice is given of the Public Lecture. Successful evening meetings will greatly aid in creating a deeper interest in Education, and in securing a heartier sympathy and co-operation with the teacher in his arduous work.

It is hoped that Inspectors and Teachers will endeavour to awaken more interest in the "Teachers' Reading Course," and secure its adoption in every Inspectoral Division in the Province. For 1887 the Directors will discuss "Hopkins' Outline Study of Man" and "Fitch's Lectures on Teaching." Teachers should come prepared, by a careful reading of these works, to discuss the principles of teaching so ably set forth by the authors of these two books. The Directors will take up as one of the subjects requiring special attention "School exercises for Friday afternoon."

Dr. McLellan will attend the Institutes named in the first column, Mr. Tilley those in the second, and for the remaining meetings special provision will be made, of which Inspectors will be notified by the Department.

One annual meeting must be held in each Inspectoral Division, but the holding of other meetings is left with the Association. Township or District meetings should be encouraged.

All the Institutes cannot possibly be held at the most favorable seasons of the year, but it is hoped that the dates assigned for the meetings will be accepted as the best arrangement that can be made.

The place at which the Institute is to be held will be selected by the County Inspector on consultation with the Directors. Programmes should be issued at least one month before the date of the Institute.

TORONTO, November, 1886.

TEACHERS' INSTITUTES.

Dates of Annual Meetings, 1887.

JANUARY.	I.	II.	III.	IV.
20th and 21st	South York	North York.		
27th and 28th	Halton	Dufferin.		
FEBRUARY.				
3rd and 4th	East Grey	Haldimand.		
10th and 11th	East Victoria	Lincoln.		
17th and 18th	West Victoria	Glengarry.		
24th and 25th	Waterloo	Carleton.		
MARCH.				
3rd and 4th	S. Wellington	East Middlesex.		
APRIL.				
21st and 22nd	Elgin	Lennox & Addington		
28th and 29th	West Kent	West Middlesex...	Lanark	North Essex.
MAY.				
5th and 6th	North Hastings	Brant	Prescott & Russell..	South Essex.
12th and 13th	South Hastings	Norfolk	Dundas	East Kent.
19th and 20th	Leeds	Frontenac	Renfrew	East Bruce.
26th and 27th	Grenville	Muskoka	Ontario	West Bruce.
JUNE.				
2nd and 3rd	Stormont	South Grey	Peel	Welland.
9th and 10th	Northumberland	South Simcoe	West Huron.	
16th and 17th	Durham	North Simcoe.		
23rd and 24th	Peterboro	North Grey.		
SEPTEMBER.				
15th and 16th	Welland.			
22nd and 23rd	Haliburton.			
29th and 30th	Perth.			
OCTOBER.				
6th and 7th	Wentworth.			
13th and 14th	East Huron.			
20th and 21st	N. Wellington.			
27th and 28th	Lambton.			
NOVEMBER.				
3rd and 4th	Oxford.			
10th and 11th	Prince Edward.			

4—CONFIRMATION OF BY-LAWS.

The following is a list of the By-laws confirmed during 1886.

Municipality passing By-law.	Date of Application to confirm.	School Corporation affected.	Other Municipalities concerned.	How disposed of.
Township of Armour.	February 10th, 1886.	2 Armour and Union 1 Armour and Strong	.....	By-law No. 45, Confirmed 20th April, 1886.
Township of N. Plantagenet	April 20th, 1886	School Section No. 1, and Protestant Separate School No. 1.	.....	By-law No. 240, Confirmed June 7th, 1886.
do	do	Sections 3, 6, 12 & 15.	.....	By-law No. 241, Confirmed June 7th, 1886.

APPENDIX B.—PROVINCIAL NORMAL AND MODEL SCHOOLS.

1.—THE TORONTO NORMAL SCHOOL.

1. *Staff of the Toronto Normal School, 1886.*

Thomas Kirkland, M. A.	Principal.
James Carlyle, M. D.	Mathematical Master.
J. H. McFaul	Drawing Master, and in Model School.
S. H. Preston	Music " "
Sergt. T. Parr	Drill and Calisthenics " "

2.—*Students in the Toronto Normal School, 1886.*

	ADMITTED.	
	Male.	Female.
First Session.....	38	81
Second Session	37	83
Total.....	75	164

2.—THE OTTAWA NORMAL SCHOOL.

1.—*Staff of the Ottawa Normal School, 1886.*

John A. MacCabe, M. A.	Principal.
Geo. Baptie, M. A., M. B.	Science Master.
Wm. Scott, B.A.	Mathematical Master.
R. H. Whale	Drawing Master, and in Model School.
W. G. Workman	Music " " "
E. B. Cope	Drill and Calisthenics Master, and in Model School.

2. *Students in the Ottawa Normal School, 1886.*

	ADMITTED.	
	Male.	Female.
First Session	42	53
Second Session	68	37
Total	110	90

3.—THE TORONTO MODEL SCHOOL.

1. *Staff of the Toronto Model School, 1886.*

Charles Clarkson, B. A.	Head Master, Boys' Model School.		
Angus McIntosh	First Assistant,	"	"
James McLurg	Second	"	"
Miss Hattie McLellan	Third	"	"
" Margaret T. Scott	Head Mistress, Girls' Model School.		
" K. F. Hagarty	First Assistant,	"	"
" M. Meehan	Second	"	"
" J. Meneilley	Third	"	"
" C. M. Hart	Kindergarten Teacher.		

2. *Number of Pupils in 1886.*

Boys, 144.	Girls, 186.	Total, 330.
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4.—THE OTTAWA MODEL SCHOOL.

1. *Staff of the Ottawa Model School, 1886.*

Edwin D. Parlow	Head Master, Boys' Model School.		
Thomas Swift	First Assistant,	"	"
R. H. Cowley	Second	"	"
Miss M. Thomson	Third	"	"
" Adeline Shenick	Head Mistress, Girls' Model School.		
" Mary G. Joyce	First Assistant,	"	"
" Margaret A. Mills	Second	"	"
" M. E. Butterworth	Third	"	"
" E. Bolton	Kindergarten Teacher.		

Number of Pupils in 1886.

Boys, 174.	Girls, 154.	Total, 328.
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SCHEDULE A.—STATISTICS OF

NAME OF MODEL SCHOOL.	No. of Student Teachers on Roll.				No. who withdrew during the term.	No. that passed Final Examination.																
	Males.	Females.	Increase over last year.	No. that failed.			Males.	Females.	Increase over last year.	No. that failed.	No. of Lectures on Education.	No. of Lectures on School Law.	No. of Lectures on Hygiene.	No. of Lessons taught by each Student.	No. of Departments used.	No. of Assistants with required qualification.						
1 Barrie	26	11	15			26	11	15			40	10	20	26	12	6						
2 Beamsville	17	9	8	4	1	16	8	8	3		18	10	10	30	3	3						
3 Berlin	11	4	7		1	10	4	6			75	4	10	40	10	6						
4 Bracebridge																						
5 Bradford	22	14	8	4		22	14	8	4		45	13	26	30	4	4						
6 Brampton	20	9	11			15	7	8		5	26	5	25	38	5	5						
7 Brantford	31	5	26	2	1	30	5	25	2		54	16	35	38	7	7						
8 Caledonia	31	11	20	9		28	9	19	6	3	60	20	30	20	4	4						
9 Chatham	49	27	22	13		49	27	22	13		65	13	26	32	14	11						
10 Clinton	35	22	13	7		35	22	13	11		35			26	8	7						
11 Cobourg	28	14	14			24	11	13	2	4	60	10	20	30	10	10						
12 Cornwall	9	4	5			8	3	5		1	30	12	25	30	6	3						
13 Durham	12	8	4			12	8	4			36	30	24	36	4	3						
14 Farmersville	32	10	22			32	10	22			70	8	12	19	3	3						
15 Forest	27	15	12	9		27	15	12	14		52	15	25	31	5	4						
16 Galt	12	1	11			11		11		1	40	8	12	28	7	6						
17 Goderich	33	17	16	6		33	17	16	14		56	6	20	30	7	6						
18 Hamilton	40	11	29	23	1	39	11	28	22		120	20	23	20	all	all						
19 Ingersoll	20	6	14	5		20	6	14	7	3	30	5	20	33	12	9						
20 Kincardine	31	22	9	2		28	19	9	3	3	42	5	12	38	10	7						
21 Kingston	23	4	19	4	2	21	4	17	2	2	60	12	20	25	11	11						
22 Lindsay	33	17	16	10		33	17	16	11		45	5	24	20	11	8						
23 London	39	7	32	2	1	31	7	24		7	80	4	10	35	5	4						
24 Madoc	41	22	19	4		41	22	19	6		40	20	26	16	5	4						
25 Martintown	7	4	3			7	4	3			40	10	15	40	3	1						
26 Milton	18	9	9			18	9	9			135	16	22	29	6	3						
27 Mitchell	24	13	11			19	11	8		5	43	9	13	30	8	7						
28 Morrisburg	19	5	14			17	4	13		2	80	12	33	22	7	4						
29 Mount Forest	40	17	23			40	17	23	5		30	8	8	23	8	3						
30 Napanee	27	8	19			27	8	19			20	5	12	30	6	4						
31 Newmarket	27	14	13	4		25	13	12	2	2	60	10	15	30	5	4						
32 Norwood	21	8	13	12		21	8	13	13		60	8	12	32	4	2						
33 Orangeville	24	13	11	5		24	13	11	5		95	20	36	30	8	8						
34 Owen Sound	35	15	20	13		35	15	20	17		50	10	20	34	7	5						
35 Parkdale	37	23	14	10		35	22	13	11	2	72	15	22	29	10	8						
36 Perth	36	12	24	3	1	35	12	23	4		48	7	27	28	7	7						
37 Picton	21	11	10	2		21	11	10	2		65	1	38	26	8	7						
38 Port Hope	27	11	16	3		25	11	14	2	2	52	15	26	28	12	7						
39 Port Perry	27	18	9	11		27	18	9	11		60	13	26	30	5	3						
40 Prescott	22	8	14	5		21	7	14	4	1	60	26	40	32	6	6						
41 Renfrew	70	14	56	21	1	69	14	55	20		35	5	10	30	5	3						
42 St. Thomas	50	25	25		9	35	15	20		6	60	8	12	20	8	4						
43 Sarnia	27	9	18	2	1	25	7	18	3	1	80	9	42	41	9	6						
44 Simcoe	29	16	13	13		29	16	13	13		55	10	20	32	7	7						
45 Stratford	47	25	22			41	22	19		6	50	20	25	30	18	15						
46 Strathroy	38	21	17	4	1	24	14	10	1	13	40	8	24	35	8	7						
47 Toronto	22		22		1	21		21		1	60	6	20	45	10	all						
48 Vankleekhill	29	8	21	5		29	8	21	7		60	30	50	31	4	4						
49 Welland	18	5	13			18	5	13			20	5	20	30	4	3						
50 Walkerton	35	15	20			32	12	20		3	44	7	19	30	7	4						
51 Whitby	26	14	12	10	1	25	14	11	9		56	16	20	28	4	3						
52 Windsor	21	5	16	4		19	4	15	3	2	20	15	15	23	7	7						
53 Woodstock	22	11	11	2	1	21	11	10	1		35	10	25	30	7	7						
Total	1468	627	841	233	23	1376	582	794	253	72	2764	585	1117									

COUNTY MODEL SCHOOLS, 1886.

Time given daily by Principal to Lectures, etc.	Was Assistant provided?	To what extent was Principal relieved each day.	Is separate room provided?	Is this room in the school building?	Was Vocal Music taught?	Was Drill taught?	Allowance to Assistants for Model School work.	Allowance to Principals for Model School work.
							\$ c.	\$ c.
1 3 hrs.	yes	3 hours	yes	yes	yes	yes	150 00	
2 all day	"	all day	"	"	"	"	100 00	200 00
3 "	"	"	"	"	no	"	150 00	150 00
4								
5 all day	yes	all day	yes	yes	yes	yes	75 00	
6 "	"	"	"	"	"	"	150 00	150 00
7 "	"	"	"	"	no	"		175 00
8 "	"	"	"	"	"	"	125 00	
9 3 hrs.	"	3 hours	"	no	yes	"	200 00	
10 all day	"	all day	"	"	"	"	100 00	25 00
11 4 hrs.	"	4 hours	"	"	no	no		
12 2½ hrs.	"	2½ hours	"	"	"	"	50 00	45 00
13 3 hrs.	"	3 hours	"	yes	yes	"	150 00	
14 all day	"	all day	"	"	no	"	75 00	
15 3 hrs.	"	3 hours	"	no	"	"	65 00	
16 3 hrs.	"	"	"	yes	"	"	100 00	50 00
17 4 hrs.	"	4 hours	"	"	yes	yes	50 00	
18 all day	"	all day	"	"	"	"	200 00	300 00
19	"	"	"	no	"	"	140 00	
20 4½ hrs.	"	4½ hours	"	yes	no	no	130 00	
21 4 hrs.	"	4 hours	"	"	"	yes	120 00	
22 2½ hrs.	"	2½ hours	"	"	"	no		200 00
23	"	"	"	"	"	yes	80 00	120 00
24 3 hrs.	"	all day	"	"	yes	"		
25	no	"	"	"	"	no	25 00	100 00
26 all day	yes	all day	"	"	no	yes	120 00	50 00
27	"	"	"	"	"	no	130 00	
28	"	"	"	"	"	no	150 00	
29 2½ hrs.	"	"	"	"	yes	yes	130 00	100 00
30 all day	"	"	"	"	no	"	120 00	
31 3 hrs.	"	"	"	"	"	"	100 00	
32	"	"	"	"	"	"	90 00	150 00
33 all day	"	4½ hours	"	"	"	"	135 00	
34	"	all day	"	"	yes	"	150 00	
35	"	"	"	"	no	"	180 00	
36	"	"	"	"	yes	"	100 00	
37	"	"	"	"	no	"		
38	"	"	"	"	yes	"		
39 3 hrs.	"	3 hours	"	"	no	no		100 00
40 all day	"	all day	"	"	yes	yes	100 00	100 00
41 3 hrs.	"	3 hours	"	"	"	no	125 00	200 00
42 all day	"	all day	"	"	"	yes	100 00	
43 4 hrs.	"	"	"	"	"	"	125 00	
44 all day	"	"	"	"	"	"	150 00	
45 5½ hrs.	"	"	"	no	"	"	150 00	
46 3 hrs.	"	3 hours	"	yes	no	no	75 00	50 00
47	"	"	"	"	yes	"	100 00	
48 all day	"	all day	"	"	"	"		
49 3 hrs.	"	3 hours	"	"	"	yes	130 00	
50 all day	"	all day	"	no	no	"	78 00	
51 4 hrs.	"	all day	"	yes	"	no	138 00	
52 all day	"	3 hours	"	"	yes	yes	125 00	100 00
53	"	all day	"	"	no	no	150 00	100 00
		"	"	"	"	"	125 00	

SCHEDULE B.

NAME OF MODEL SCHOOL.	NAME OF PRINCIPAL.	CLASS OF CERTIFICATE.
Barrie	T. O. Steele	1st Class A.
Beamsville	A. E. Caverhill	1st " C.
Berlin	J. Suddaby	1st " C.
Bracebridge		
Bradford	J. Day	1st " A.
Brampton	H. Morton	1st " "
Brantford	W. Wilkinson	M. A.
Caledonia	J. Rowat	1st Class A.
Chatham	G. B. Kirk	1st " A.
Clinton	W. R. Lough	1st " C.
Cobourg	A. Barber	1st " C.
Cornwall	P. Talbot	1st " C.
Durham	J. Winterborn	1st " A.
Farmersville	T. M. Porter	1st " C.
Forest	C. S. Falconer	1st " C.
Galt	R. Alexander	1st " B.
Goderich	A. Embury	1st " A.
Hamilton	G. W. Johnston	1st " "
Ingersoll	H. F. McDiarmid	1st " "
Kincardine	F. C. Powell	1st " B.
Kingston	R. K. Row	1st " B.
Lindsay	R. Lees	1st " C.
London	W. J. Carson	1st " A.
Madoc	D. Marshall	1st " B.
Martintown	Alexander Kennedy	1st " "
Milton	H. Gray	1st " "
Mitchell	Samuel Nethercott	1st " B.
Morrisburg	Gideon E. Broderick	1st " A.
Mount Forest	S. B. Westervelt	1st " "
Napanee	J. Bowerman	2nd " "
Newmarket	W. Rannie	1st " C.
Norwood	A. Hutchinson	1st " C.
Orangeville	M. N. Armstrong	1st " "
Owen Sound	T. Frazer	1st " "
Parkdale	J. A. Wismer	1st " "
Perth	M. M. Jaques	1st " "
Pictou	R. F. Greenlees	1st " A.
Port Hope	F. Wood	1st " "
Port Perry	A. M. Rae	1st " C.
Prescott	C. McPherson	1st " B.
Renfrew	W. H. Harlton	1st " A.
St. Thomas	N. M. Campbell	1st " "
Sarnia	Alexander Wark	1st " B.
Simcoe	George Sharman	1st " B.
Stratford	C. W. Chadwick	1st " A.
Strathroy	Thomas Dunsmore	1st " C.
Toronto	R. W. Doan	1st " B.
Vankleekhill	R. J. Sangster	1st " C.
Welland	R. Grant	1st " C.
Walkerton	W. R. Telford	1st " B.
Whitby	J. Brown	1st " "
Windsor	J. Duncan	1st " "
Woodstock	G. Van Slyke	1st " A.

APPENDIX D.—*TEACHERS' INSTITUTES.*

1. ONTARIO TEACHERS' ASSOCIATION, 1886.

Extract from the proceedings of Convention held on the 10th, 11th and 12th days of August, 1886.

The Convention met on Tuesday, August 10th, 1886.

The President, Mr. S. McAllister, in the chair.

RESOLUTIONS ADOPTED.

By the Association.

Resolved, That the regulations in force in 1883 be restored, requiring that no candidate shall be permitted to present himself for non-professional examination for Second Class Teachers' certificates until one year shall have elapsed from the time of his obtaining his Third Class non-professional certificate; provided, however, that should any candidate obtain forty per cent. of the aggregate number of marks at any Third Class non-professional examination, he shall be permitted to write at the Second Class non-professional examination in any subsequent year, one year's notice to be given before such regulation shall come in force.

Resolved, That whereas the prize system in operation in our schools and colleges involves the expenditure of a large amount of money that should be devoted to better uses in advancing the interests of education;

And whereas, the incentives employed and the motives thus appealed to, tend to retard rather than aid the teacher in trying to employ the higher methods of culture;

And whereas, competitive examinations are not sufficiently reliable in case of awarding prizes;

And whereas, the awarding of scholarships ostensibly to aid needy students, is ineffectual and misleading:

It is the opinion of this Association—

1. That prizes, scholarships and medals should be abolished in all our educational institutions.

2. That public money now devoted to this purpose should be used to increase the general efficiency of the Provincial University.

3. That prize money now derived from private sources, supplemented by as much more as may be available, should be used (a) to establish a beneficiary fund for needy and worthy students, to be disbursed according to a plan similar to that in operation at Yale College, including the principle of loans to such students, based on *moral worth, present need, and reputable scholarship*, and independently of competitive examinations; (b) Any available surplus to be used to encourage *original research and special post graduate work*.

4. That instead of the present system of prizes, scholarships and medals, honor students should be classified in such a way that the highest distinction in the University shall be attainable by all whose scholarship reaches a certain standard, say that of present gold medallists (or higher if necessary).

Subordinate honors to be decided in a similar manner—the principle here involved to apply also to matriculation and ordinary sessional examinations.

5. That a copy of these resolutions be sent to the authorities of each university in Ontario, as the expressed opinion of this Association.

Report of Committee on President's Address (adopted).

That it is not creditable to our Province that the percentage of average attendance at our Public Schools should be so small, viz.: forty-eight per cent. of those registered, and that there are 90,959 pupils between the ages of seven and thirteen years, who have not attended school the minimum number of days required by law, besides those who have not entered the schools. As stated by the Minister of Education in his last report, "one great problem requiring our attention is how to increase the average attendance." The greater regularity of attendance shown by the statistics of other countries should stimulate us to investigate, and, if possible, to remove the causes that operate against a more regular attendance at the Schools of Ontario. In the words of the Address, "The law of compulsory education is not a dead letter there (Australia, etc.), as it is allowed to be with us." Undoubtedly there is an aversion on the part of trustees to compel their neighbors' children to attend school, but the clauses of the law relating to compulsory education are inoperative chiefly for the reasons that, at least so far as they relate to rural schools, they are not practicable, owing to the incompleteness of the census returns, and the inadequacy of the machinery provided to convict and punish offenders.

It is some gratification, however, to know that the percentage of average attendance is steadily, if but slowly, increasing, and further, that the actual condition of affairs is better than would appear from the official report, because the average is reckoned upon the total number registered between the ages of five and twenty-one, whereas many thousands of those who attend but a few days in the year are under seven years of age and over fifteen, and who in many instances are better off than in the public schools: therefore we beg to recommend to the Honorable the Minister of Education that the public reports should be made to state the average attendance of those who are properly of public school age, namely, of pupils from seven to fifteen years, inclusive, as showing more correctly the extent to which our people are availing themselves of the means provided by the nation for public school education.

Reports respecting Teachers' Associations were received from :

Mr. McMillan	Ottawa	Representing 50 Members
" Alexander	Waterloo	" 80 "
Dr. Kelly	Brant	" 120 "
Mr. Ramage	S. Grey	" 100 "
" N. McKinnon	W. Bruce	" 80 "
" Geo. Lindsay	E. Grey	" 70 "
" McEwan	S. Hastings	" 120 "
" J. B. Hume	Haldimand	" 105 "
" J. W. Morgan	W. Huron	" 85 "
" John Elliott	W. Grey	" 100 "
" F. L. Michell	Lanark	" 126 "
" Chenay	N. Essex	" 100 "
" D. H. Hunter	Oxford	" 170 "
" W. J. Osborne	Prince Edward	" 96 "
" J. W. Henstridge	Frontenac	" 140 "
" J. H. Moffat	Carleton	" 126 "
" J. W. Smith	S. Essex	" 80 "
" J. S. Deacon	Halton	" 85 "
" R. Coats		
" David Nairn	S. Wellington	" 120 "
" W. E. Norton	E. Lambton	" 100 "
" J. F. Ballard	Wentworth	" 110 "
" W. E. Tilley	Durham	" 125 "
" W. H. Ballard	Hamilton	" 120 "
" A. Barber	Northumberland	" 130 "
" D. Marshall	N. Hastings	" 60 "

PUBLIC SCHOOL SECTION.

Report of Committee on the Kindergarten System (adopted.)

1. That in our opinion the success attending the introduction of a modified form of the Kindergarten in the schools of Berlin, Galt and Dundas, proves that it may be successfully introduced into town, village and also rural schools ; also that the Hon. Minister of Education be requested to take such steps as will secure the bringing of the subject before every county association which has not yet considered the matter.

2. We are also of the opinion that if a Kindergarten class were established in Toronto, to commence, say at the close of the schools in June, to continue some two or three weeks, it would prove to be a great help to those teachers who are anxious to obtain a knowledge of Kindergarten methods, and we doubt not would be largely attended.

3. It would be desirable that the Minister of Education should aid school officials in securing a supply of Kindergarten material, either by money grant or by selling such material at cost.

Resolved, That it would be, in the interests of true teaching to have the "marking system" abolished, so far as it relates to the unwritten work of the pupils.

HIGH SCHOOL SECTION.

Resolved, That the Senate of Toronto University be requested to make the work in Classics for Junior Matriculation with Honors, the same as that of the First Year Pass.

Resolved, That the Senate of Toronto University be requested to apply to the classification of pass candidates, the same principle as that now applied to the classification of honor candidates in the fourth year.

The Committee on Constitution, By-laws and Rules of Order for the Section, presented the following draft, which was adopted :—

THE HIGH SCHOOL SECTION OF THE ONTARIO TEACHERS' ASSOCIATION—CONSTITUTION AND BY-LAWS.

I.—MEMBERS.

The High School Section of the Ontario Teachers' Association shall consist of :—

- (a) All qualified Teachers in the High Schools and Collegiate Institutes in Ontario ;
- (b) All other Teachers in Colleges and Secondary Schools, who have applied for admission to membership, and who have been duly accepted by a majority vote of the members present at any regular meeting of the Section.

II.—FEES.

All members shall pay to the Section Treasurer an annual fee of 50 cents. No members shall have the right of voting, or of holding office, until this fee has been paid.

III.—OFFICERS.

(a) The officers of the Section shall be a Chairman, a Secretary-Treasurer, five Directors, and a Legislative Committee.

(b) These officers shall be elected annually by ballot, at the last regular meeting of the Section.

(c) Every candidate for office must be nominated by a member of the Section before a ballot is taken.

IV.—MEETINGS.

This Section shall meet annually, and shall have at least three regular sessions during the morning of the days of meeting of the General Association. Each session shall begin at the hour of 10 a.m. Ten members shall form a quorum. Special meetings of the Section may be held when necessary, and regular sessions may begin at an earlier hour than 10 a.m., when a majority of the members so decide.

V.—DUTIES OF OFFICERS.

Duties of Chairman.

The Chairman shall preside at all meetings of the Section, and at all meetings of the Executive of the Section, and shall perform such other duties as by custom devolve upon a presiding officer. In the absence of the Chairman, a *pro tempore* chairman may be appointed on nomination, the Secretary-Treasurer putting the question.

Duties of Secretary-Treasurer.

The Secretary-Treasurer shall keep a full and correct record of the proceedings of the Section; shall give a copy of the Section minutes to the Secretary of the General Association; shall conduct such correspondence as the Section Executive may assign; shall receive from members their annual fee, and shall pay over to the Treasurer of the General Association all moneys received; and shall give to the Chairman of the Section, whenever required to do so, a list of names of members qualified to vote and hold office.

Duties of the Directors.

The Chairman, the Secretary-Treasurer and the five Directors, shall constitute the Executive Committee of the Section. The members of the Executive Committee of the Section are members of the General Executive Committee. The Executive of the Section shall have power to fill all vacancies occurring in the interim between the annual meetings. This Committee shall have charge of the general interests of the Section; shall arrange the programme for the annual meetings; and shall do everything possible to advance the interests of the Section.

The Legislative Committee.

The Legislative Committee of the Section shall represent the Section in all matters pertaining to educational legislation.

VI.—AMENDMENTS TO CONSTITUTION AND BY-LAWS.

Amendments to the Constitution and By-Laws may be made at any regular meeting by a two-thirds vote, provided notice of the proposed amendment or amendments has been given at the previous meeting.

VII.—RULES OF ORDER.

The Rules of Order of the General Association shall be the Rules of Order of the High School Section.

VIII.—ORDER OF BUSINESS.

The Order of Business of ordinary meetings shall be :

- (a) Roll of Officers called.
- (b) Reading of Minutes.
- (c) Reading of Communications.
- (d) Reports of Committees.
- (e) Business arising out of the Minutes.
- (f) Election of New Members.
- (g) Reading of papers announced in annual programme.
- (h) New Business.
- (i) Election of Officers.
- (j) Adjournment.

NOTE.—This Order of Business may at any time be altered by a majority vote.

Resolved. (1) Inasmuch as it is impossible for any examiner to set papers uniform, or nearly uniform, from year to year, while the average of thousands of candidates is nearly uniform ; therefore, be it resolved that in the opinion of this Section it is desirable that to some extent the candidates should be made the standard of qualification. (2) Inasmuch as the candidates at the departmental examinations have been taught by masters who do not all follow the same line of thought, and it is not desirable that all masters should be forced to teach in the same way ; therefore this Section would recommend that two or more examiners set questions on the same paper, and that each paper contain more questions than the candidate is permitted to attempt.

Resolved, That in the opinion of this Section a County Board of Examiners, composed only of the head-masters of High Schools or Collegiate Institutes and the Public School Inspectors within the county, should read the answers of candidates for admission to High Schools, and that the Board of Examiners should have the full discretionary power of passing any pupil they think able to keep up with High School Work.

Resolved, That a Committee be appointed to wait on the Minister of Education after his return, and to call his attention to the objectionable character of many of the papers at the recent departmental examinations for admission to the High Schools, and for teachers' non-professional certificates.

Resolved, That while the High School masters have the undoubted right, individually and collectively, of expressing their opinion, adversely if need be, in regard to the character of examination papers and any other papers affecting their interests, it is desirable that in all correspondence conducted by teachers, the language and the sentiments expressed should be such as become scholars and gentlemen, and this Section hereby records its disapproval of the charges of corrupt motives made against two of the examiners.

Resolved, That the play of Shakespeare, chosen for honor junior matriculation of 1887, viz., Timon of Athens, is quite unfit to be read in mixed classes ; it is suggested that some other play be, if possible, substituted for it.

INSPECTORS' SECTION.

Resolved, That the Minister of Education is respectfully requested to have a Model Kindergarten conducted during the summer holidays, next year, which should be attended by the primary teacher of each Model School in which there is not a regular Kindergarten, and by such other teachers as may wish to attend.

Resolved, That no Third Class Certificate should be renewed without re-attendance at a Model School, except on the recommendation of the Inspector, under whom the teacher has taught during the three years' term of his expired certificate.

Resolved, That the Minister of Education be requested to provide as formerly General Registers for the Public Schools, and that the form be modified so as to render it more practicable for use in connection with the present system of reporting attendance.

Report of Committee on Entrance Examinations (adopted.)

Your Committee beg to report that they have, in obedience to your wishes, not only discussed the general question of the entrance examination, but that they have gone more particularly into the specific questions referred by you to them.

They have therefore the honor to report, That the entrance examination should be retained, not only from its usefulness in connection with High Schools, with which view of the case our Section is not so immediately concerned, but because it has also served a most useful purpose with respect to Public School work, as forming a test of that work, and a certain educational status to which pupils in rural schools might be urged to attain. They feel at the same time that it has been, and is open to grave objections under its present management as viewed from this latter standpoint, and the criticisms made and improvements suggested by your Committee largely owe their existence to the fact that it is our duty to consider the question chiefly as related to Public Schools, to which it may readily be made a most important aid.

Having defined their general position, your Committee desire to say :—

1. That whereas uniformity in the results is desirable, and is insisted on by the Departmental *Regulations*, it has by no means been obtained, and that this is due not altogether nor chiefly to the various styles of marking adopted by the different High School Entrance Boards or to their regulations.

2. That they most strongly approve of the *general tendency* of the papers set at the last Entrance Examination, but that they find it impossible to resist an endorsement of at least some of the complaints made to your Section, and referred to us with respect to individual papers and questions. On these points they find :—

(a) Whilst the direction to which the papers in Literature and Grammar pointed was unquestionably good, they are in the meantime too difficult.

(b) The History paper was decidedly too difficult.

(c) The Grammar paper was misleading on account of the style in which some of the questions were put.

(d) That two lists of isolated words (given for spelling or for pronunciation) on the Orthography and Orthöpy papers should never have been given.

Viewing, then, these defects chiefly as they affect the Examination in its higher relation to Public Schools, your Committee would suggest as reforms necessary to restore public confidence in the Examination :—

1. That the standard as set down should not be lowered an iota, but that the questions should be kept rigidly within the prescribed limits, viz., the work set down for IV. C asses in Public Schools.

2. That the language in which these questions are clothed should (taking into consideration the nervous flurry of most children at an examination) be easily within the comprehension of an average pupil properly prepared, so that no explanations on the part of the local examiners should be rendered necessary.

3. That there should be a Board of Examiners in each county, to consist of the Inspector or Inspectors, and the High School Head Master or Head Masters.

4. That in the preparation of the papers and the revision of the work, two Public School Inspectors should be associated with those now composing the Board, so that the higher end of the Entrance Examination (its relation to the Public Schools) should be more fully met. Your Committee feel that at present this phase of the question must necessarily be largely lost sight of by gentlemen who for years have had no connection with Public Schools, but who have achieved their well-deserved distinction by a thorough knowledge of High School work, and by a keen interest in and intense devotion to that particular branch of labor in the educational field. Your Committee feel sure that the High School Inspectors would be glad of the addition of two of our number as being likely to make the results of the Entrance Examination more harmonious and symmetrical with reference to the diverse and sometimes conflicting interests affected by such an examination.

5. Finally it is recommended that the Minister should, on the nomination of this Section, appoint an Inspector, who shall hold office for two years, two Inspectors being appointed the first year, one of whom shall retire by lot at the end of that year.

2.—TEACHERS' INSTITUTES—FINANCIAL STATEMENT, 1885.

NAME OF INSTITUTE.	No. of Institutes.	Total Number of Members.	Government Grant.	Municipal Grant.	Members' Fees.	Balances and other sources.	Total Receipts.	Printing and Postage.	Libraries, Educational Journals, etc.	Miscellaneous.	Total Expenditure.	Balances.
			£	c.	£	£	£	c.	£	£	£	£
1 Brant.....	1	120	25 00	25 00	26 50	35 08	111 53	6 00	59 11	1 50	66 61	44 92
2 Bruce, East.....	1	114	25 00	25 00	17 75	89 02	139 02	14 51	28 30	14 30	57 11	81 91
3 Bruce, West.....	1	71	25 00	25 00	17 75	171 29	239 04	24 45	102 25	109 04	235 74	3 30
4 Carleton.....	1	126	25 00	25 00	17 50	108 66	158 66	16 55	20 00	49 75	86 30	72 36
5 Dufferin.....	1	89	25 00	25 00	17 50	6 22	73 72	9 72	60 00	.....	69 72	4 00
6 Dundas.....	1	95	25 00	25 00	6 00	15 56	71 56	13 80	.....	19 75	33 55	38 01
7 Durham.....	1	120	25 00	25 00	18 25	41 12	109 37	23 00	.....	43 17	64 17	45 30
8 Elgin.....	1	175	25 00	25 00	.....	62 08	112 08	53 50	.....	15 00	68 50	43 58
9 Essex, North.....	1	100	25 00	25 00	.....	51 24	126 24	.....	.....	81 00	81 00	45 24
10 Essex, South.....	1	73	25 00	50 00	.....	120 14	186 14	41 85	.....	35 30	77 06	118 09
11 Frontenac.....	1	22	25 00	.....	5 75	33 68	64 43	11 25	2 50	85 00	48 75	15 68
12 Glengarry.....	1	80	25 00	.....	.....	63 55	88 55	10 56	6 00	31 00	47 56	40 99
13 Grenville.....	1	60	25 00	.....	.....	21 84	46 84	4 75	13 21	5 88	23 84	23 00
14 Grey, East.....	1	60	25 00	.....	.....	194 91	219 91	15 60	39 00	41 00	95 60	124 31
15 Grey, West.....	1	70	25 00	25 00	.....	40 29	65 29	1 25	.....	1 08	2 33	62 96
16 Grey, South.....	1	100	25 00	25 00	7 75	27 50	85 25	4 45	15 65	30 10	50 20	36 06
17 Haldimand.....	1	126	25 00	25 00	.....	119 59	189 59	2 75	.....	6 20	7 95	161 64
18 Haliburton.....	1	46	25 00	25 00	.....	80 95	105 95	13 97	26 28	10 50	50 75	55 30
19 Halton.....	1	70	25 00	25 00	6 50	51 94	108 44	7 41	.....	19 25	26 68	81 78
20 Hastings, North.....	1	70	25 00	25 00	7 25	61 93	119 18	16 32	3 75	3 00	22 97	96 21
21 Hastings, South.....	1	120	25 00	25 00	19 50	.....	69 50	40	.....	19 25	19 65	49 85
22 Huron, North.....	1	53	25 00	25 00	44 50	74 81	144 31	9 35	.....	104 75	114 10	30 21
23 Huron, West.....	1	120	25 00	25 00	8 50	169 54	238 04	20 53	23 40	62 40	106 33	121 71
24 Kent, East.....	1	80	25 00	25 00	7 50	123 23	180 73	11 50	52 50	27 75	91 75	68 98
25 Kent, West.....	1	70	25 00	25 00	.....	91 81	141 81	8 90	.....	17 00	25 90	115 91
26 Lambton, East.....	1	97	25 00	25 00	27 10	35 24	87 34	15 39	.....	41 75	57 14	30 20
27 Lambton, West.....	1	110	25 00	25 00	.....	157 80	182 80	14 95	19 50	23 40	57 85	124 95
28 Leeds.....	1	120	25 00	25 00	76 75	261 05	276 05	6 00	.....	2 00	8 00	268 05
29 Lennox and Addington.....	1	119	25 00	25 00	.....	175 54	277 54	10 79	175 92	8 25	194 96	32 33
30 Lennox and Addington.....	1	100	25 00	25 00	.....	42 90	67 90	9 50	.....	8 60	10 00	57 90
31 Lincoln.....	1	109	25 00	25 00	.....	57 52	107 52	13 65	.....	9 00	22 05	84 87
32 Middlesex, East.....	1	119	25 00	25 00	32 75	68 92	126 67	82 10	.....	28 00	110 10	16 57
33 Middlesex, West.....	1	110	25 00	100 00	33 25	51 95	210 20	33 75	.....	141 20	174 95	35 25

34 Norfolk	1	129	25 00	17 50	65 39	107 89	45 02	21 00	36 55	81 57	26 92
35 Northumberland	1	126	25 00	16 75	69 51	186 26	19 56	21 00	24 15	64 70	71 06
36 Ontario	1	65	25 00	21 50	90 89	162 89	14 02	68 50	24 45	106 97	55 42
37 Oxford	1	100	25 00	25 00	63 44	113 44	10 04	89 80	12 25	111 59	1 85
38 Peel	1	47	25 00	52 80	77 35	190 15	9 00	93 59	11 43	114 02	76 13
39 Perth	1	170	25 00	.....	74 67	99 67	16 12	.....	61 50	77 62	22 05
40 Peterborough	1	50	25 00	.....	118 30	143 30	18 25	37 10	7 80	62 65	80 65
41 Prescott and Russell	1	141	25 00	.....	57 50	82 50	14 70	.....	10 33	35 03	57 47
42 Prince Edward	1	90	25 00	.....	91 42	116 42	5 90	.....	30 75	36 65	79 77
43 Renfrew	1	50	25 00	.....	50 51	75 51	12 54	.....	14 00	26 54	48 97
44 Simcoe, North	1	140	25 00	3 75	90 62	144 37	5 30	31 60	26 80	63 70	80 67
45 Simcoe, South	1	47	25 00	71 25	128 27	249 52	6 86	115 12	7 00	128 98	120 64
46 Stormont	1	36	25 00	36 00	47 58	133 58	6 21	53 50	11 51	71 22	62 86
47 Victoria, East	1	68	25 00	10 00	72 18	107 18	2 82	.....	21 50	24 32	82 86
48 Victoria, West	1	67	25 00	.....	93 45	143 45	4 50	.....	8 25	12 75	130 70
49 Waterloo	1	53	25 00	38 00	95 28	158 28	15 80	.....	112 68	128 48	29 80
50 Welland	1	95	25 00	.....	16 19	40 19	2 36	.....	37 25	39 61	85 58
51 Wellington, North	1	107	25 00	34 50	56 14	115 64	9 94	.....	20 45	30 39	85 25
52 Wellington, South	1	115	25 00	33 00	86 64	169 64	6 30	64 20	11 40	81 90	87 74
53 Wentworth	1	112	25 00	.....	68 03	91 03	18 25	.....	41 13	59 38	31 65
54 York, North	1	83	25 00	81 01	84 52	215 53	6 95	173 15	23 00	203 10	12 43
55 District of Algoma	1	53	25 00	.....	25 00	50 00	3 53	.....	7 50	11 03	38 97
56 District of Muskoka	1	50	25 00	.....	25 00	134 66	17 50	.....	56 47	72 97	61 69
57 District of Parry Sound	1	70	25 00	6 40	84 66	51 88	2 40	44 48	5 00	51 88	65 00
58 City of Hamilton	1	97	25 00	.....	70 19	95 19	2 14	24 80	3 25	30 19	59 73
59 City of Kingston	1	33	25 00	.....	75 41	100 41	7 30	27 84	5 50	40 65	173 72
60 City of London	1	48	25 00	.....	212 73	237 73	.....	40 51	23 50	64 01	19 97
61 City of Ottawa	1	60	25 00	.....	10 87	35 87	1 85	3 75	10 30	15 90	50 00
62 City of St. Catharines	1	50	50 00	.....	100 00	150 00	10 00	50 00	40 00	100 00	50 00
63 City of Toronto	1	200	25 00	45 75	154 25	225 00	9 75	50 40	57 50	117 65	107 35
64 Ontario Teachers' Association	1	.....	200 00	54 00	612 02	866 02	133 26	.....	189 43	332 68	543 34
Total, 1885	64	5666	1800 00	885 31	5667 34	9252 65	965 56	1636 21	1986 10	4587 87	4664 78
Total, 1884	64	5189	2027 06	676 05	6210 35	9423 47	1038 74	1500 09	2286 60	4875 43	4548 04
Increase	.....	477	.....	390 00	.....	.....	.....	136 12	.....	.....	116 74
Decrease	.....	.....	227 06	209 26	543 02	170 82	123 18	.....	300 50	287 56	.....

* Estimated. Returns not having been sent in, although repeatedly applied for.

APPENDIX E.

ADMISSION of Candidates to Collegiate Institutes and High Schools.

SCHOOLS AT WHICH EXAMINATIONS WERE HELD.	December, 1885.		July, 1886.	
	Examined.	Passed.	Examined.	Passed.
Alexandria	28	11	46	14
Almonte	34	16	41	18
Arnprior	14	10	62	28
Aylmer	36	18	37	20
Barrie, C. I.	62	18	96	30
Beanisville	7	4	22	11
Belleville	124	47	150	31
Berlin	36	19	85	32
Bowmanville	35	20	34	18
Bradford	41	19	65	19
Brampton	67	17	49	12
Brantford, C. I.	98	64	108	74
Brighton	23	11	47	17
Brockville	29	8	56	16
Caledonia	46	20	86	34
Campbellford	43	24	73	19
Carleton Place	28	18	35	19
Cayuga	23	9	32	10
Chatham	105	35	128	58
Clinton	27	18	67	44
Cobourg, C. I.	47	34	54	31
Colborne	28	21	44	8
Collingwood, C. I.	59	25	71	26
Cornwall	52	21	81	30
Dundas	17	4	55	19
Dunnville	28	12	29	7
Dutton	40	11	59	34
Elora	22	16	24	18
Essex Centre	48	17	85	27
Farmersville	50	29	61	26
Fergus	19	11	41	19
Galt, C. I.	46	22	95	33
Gananoque	39	16	28	7
Goderich	72	20	103	37
Grimsby	21	11	15	7
Guelph, C. I.	89	56	138	65
Hamilton, C. I.	51	63	155	83
Harriston	132	23	42	16
Hawkesbury	21	13	23	8
Ingersoll	54	13	73	21
Iroquois	45	17	61	12
Kemptville	39	14	63	25
Kincardine	88	21	95	38
Kingston, C. I.	65	20	96	36
Lindsay	45	23	79	22
Listowel	55	35	81	16
London, C. I.	110	76	103	28

ADMISSION of Candidates, etc.—*Continued.*

SCHOOLS AT WHICH EXAMINATIONS WERE HELD.	December, 1885.		July, 1886.	
	Examined.	Passed.	Examined.	Passed.
Markham	53	29	100	28
Mitchell	35	12	41	13
Morrisburg	49	25	64	32
Mount Forest	40	17	30	12
Napanee	86	36	96	23
Newburgh	47	17	61	15
Newcastle	26	13	22	15
Newmarket	63	27	74	17
Niagara	9	5	13	6
Niagara Falls South	25	2	41	21
Norwood	32	16	34	14
Oakville	18	12	26	13
Oakwood	73	40	68	12
Omeme	33	16	30	5
Orangeville	72	22	87	19
Orillia	69	19	73	30
Oshawa	151	32	63	19
Ottawa, C. I.	116	71	135	46
Owen Sound	13	43	113	39
Paris	32	17	31	11
Parkhill	68	37	70	16
Pembroke	35	22	74	37
Perth, C. I.	46	24	53	25
Peterborough, C. I.	88	55	114	48
Petrolia	66	22	71	22
Pictou	59	16	79	35
Port Dover	30	7	33	20
Port Hope	53	29	48	21
Port Perry	60	39	51	19
Port Rowan	18	4	33	11
Prescott	37	18	41	14
Renfrew	56	29	69	35
Richmond Hill	26	12	51	9
Ridgetown	47	11	57	27
Sarnia	71	31	79	45
Seaforth	50	30	50	17
Simcoe	66	30	76	30
Smith's Falls	28	10	33	18
Smithville	34	14	41	17
Stratford, C. I.	172	31	125	51
Strathroy, C. I.	25	38	115	43
Streetsville	43	19	58	9
St. Catharines, C. I.	63	28	79	35
St. Marys, C. I.	57	33	64	30
St. Thomas, C. I.	80	55	175	90
Sydenham	37	6	40	17
Thorold	126	12	22	8
Toronto, C. I.	51	99	147	68
Trenton	36	13	62	17
Uxbridge	34	20	47	23
Vankleekhill	37	9	35	6
Vienna	15	3	28	13

ADMISSION OF CANDIDATES, etc.—Continued.

SCHOOLS AT WHICH EXAMINATIONS WERE HELD.	December, 1885.		July, 1886.	
	Examined.	Passed.	Examined.	Passed.
Walkerton	29	15	59	35
Wardsville	49	17	40	27
Waterdown	61	16	52	14
Welland	48	20	56	23
Weston	29	9	44	22
Whitby, C. I.	62	19	88	42
Williamstown	27	12	39	6
Windsor	71	22		
Woodstock	57	33	81	62
OTHER PLACES.				
Alliston	54	20	68	28
Ameliasburg	14	6	26	7
Arthur			11	6
Bancroft	4	3	5	0
Blenheim	12	4	20	9
Bolton	20	3	19	11
Charleston	7	2	9	1
Deseronto	11	5	34	5
Drayton			27	12
Dresden			25	8
Durham	20	12	29	16
Erin			31	15
Exeter	20	11	26	11
Florence			31	11
Forest			61	13
London, East.	125	53	122	41
Lucan	52	13	59	15
Madoc	35	11	57	5
Markdale	23	6		
Millbrook	30	13		
Milton	34	20	50	25
Paisley	66	25	49	27
Palmerston			24	11
Penetanguishene ..	28	7	21	5
Port Arthur	7	6		
Shelburne	23	5	30	9
Stayner			42	14
Stirling	34	12	19	0
Sutton West			4	1
Tara			32	14
Thamesville			38	12
Thornbury	35	14		
Tilsonburg			41	28
Twced	9	4	25	7
Wallaceburg	12	2	13	4
Watford			70	21
West Winchester ..	40	11	52	23
Wingham	44	28	59	35

SUMMARY OF THE FOREGOING.

Collegiate Institutes	1587	831	2021	884
High Schools	3890	1659	5005	1843
Other places	759	296	1229	450
Grand total	6236	2786	8255	3177
<i>Comparison with December, 1884, and July, 1885.</i>				
Increase	486		831	
Decrease		104		805

APPENDIX F.—CERTIFICATES.

(Continued from the Report of 1885).

1. NAMES OF PERSONS WHO HAVE RECEIVED INSPECTORS' CERTIFICATES.

NOTE.—All Inspectors will be *ex-officio* members of the Board of Examiners for their respective Counties

Campbell, Neil W. Fenwick, M. M., B.A. Griffin, Albert D. Harlton, W. H.	Murray, R. W. McKay, Alex. Grant. McIntosh, Angus. Park, Robert.	Robb, David. Spankie, William, B.A., M.D. Stirling, John. Turner, J. B.
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2. NAMES OF PERSONS WHO HAVE RECEIVED EXAMINERS' CERTIFICATES.

Cheswright, Richard C. Falconer, Charles S. Gray, Henry. Gray, James, M.A.	Hume, J. P. Harrison, C. W., B.A. May, William F.	Martin, Stephen. Morgan, James W. Poole, J. B., B.A.
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3.—NAMES OF PERSONS WHO HAVE RECEIVED HIGH SCHOOL MASTERS' CERTIFICATES.

Burt, Arthur W., B.A. Burns, William, B.A. Cruikshank, G. R., B.A. Cameron, John H., B.A. DeGuerre, Ambrose, B.A. Follick, Thomas H., B.A.	Fotheringham, J. T., B.A. Gray, James, M.A. Halliday, Henry, B.A. Halls, Samuel P., B.A. Little, D. C., B.A. Maxwell, D. A., B.A.	McIntyre, James M., M.A. Perry, S. W., B.A. Skinner, D. S., B.A. Twohey, W. J. J., B.A. Wilkins, David Francis, B.A.
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4.—NAMES OF PERSONS WHO HAVE QUALIFIED AS HIGH SCHOOL ASSISTANTS.

Barclay, William Barclay Craig. Cornwall, Leslie John. Coates, Daniel Horsum, B.A. Crawford, John. Colbeck, Franklin Charles, B.A. Charles, Henrietta. Davidson, Hugh, B.A. Dewar, Wm., B.A. Fish, Jasper Nobles. Fife, Jas. Alex., B.A. Greenwood, Wm. John, B.A. Gourlay, Richard, B.A.	Gray, Robt. Alex., B.A. Garvin, Jno. Wm. Horsey, Herbert Edward, B.A. Johnston, Geo. Wealey, B.A. Kerr, Chas. Staple. Lillie, Jno. Turner, B.A. Marshall, John, B.A. Moore, Arthur Heron, B.A. Murphy, Stephen Henry, B.A. McKay, Alex. Charles, B.A. McMillan, Jas. Alex. MacPherson, Fred. F., B.A.	Nicol, Wm., B.A. Pasamore, Albert Daniel, B.A. Patterson, Richard Allan, B.A. Robertson, Jno. Charles, B.A. Simpson, Nelson, B.A. Stephen, Wm., B.A. Short, James, B.A. Spooner, Margaret M., B.A. White, James, B.A. Wilson, Gilbert Daniel, B.A.
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5.—CERTIFICATES GRANTED.

THIRD, SECOND AND FIRST CLASS.	Male.	Female.	Total.
Third Class, by County Boards, as per County Model School Reports, p. 28.....	582	794	1376
Second Class, by Department, viz:			
Ottawa Normal School	99	105	204
Toronto Normal School	84	157	241
First Class, by Department	36	9	45
Total	801	1065	1866

District Certificates granted under Regulations approved May, 1883.

COUNTY OR DISTRICT.	Number of Candidates.	Number who obtained Certificates.
Hastings	16	16
Renfrew	105	71

6.—LIST OF PROVINCIAL CERTIFICATES GRANTED BY THE EDUCATION DEPARTMENT.

Certificate granted by the Minister of Education, 5th April, 1886, to Candidate who passed the Second Class Professional Examination.

Second Class.

No.	Name.	Grade.	No.	Name.	Grade.
7197	Bateman, Frank.....	B			

Certificate granted by the Minister of Education, 7th May, 1886, to Candidate exempted from attending a Normal School.

Second Class.

7198 | Hobbs, Alfred Thomas..... | A ||

Certificates granted by the Minister of Education, 18th June, 1886, to Candidates who passed the Second Class Professional Examination, June, 1886.

TORONTO NORMAL SCHOOL.

Second Class.

7199	Bell, Thomas	A	7243	Powell, Annie Anta	A
7200	Blair, Frederick	A	7244	Riddell, Elizabeth	A
7201	Bothwell, John Alex	A	7245	Riggins, Grace Adelaide	A
7202	Catley, Henry	A	7246	Read, Ida Jane	A
7203	Dandeno, James Brown	A	7247	Reinhart, Phoebe	A
7204	Eggleton, Charles Sydney	A	7248	Sanson, Ellen	A
7205	Gray, John Aikman	A	7249	Sheehan, Catharine	A
7206	Graham, Louis Hartley	A	7250	Thompson, Jessie	A
7207	Hamilton, Hugh Geo	A	7251	Taylor, Jane	A
7208	Millington, James Wm	A	7252	Taylor, Ada Elizabeth	A
7209	Meade, Robert	A	7253	Thompson, Catharine	A
7210	McGregor, Duncan	A	7254	Whyte, Ellen Priscilla	A
7211	McAlpine, Walter Simon	A	7255	Weir, Susannah	A
7212	McNamara, Albert Thomas	A	7256	Wilson, Alice	A
7213	McDonald, John Alex	A	7257	Weir, Ann	A
7214	Oliver, Joseph Byron	A	7258	Allen, George Powell	B
7215	Reynolds, Aaron Kilborn	A	7259	Burke, James	B
7216	Seaton, Edward Thos	A	7260	Bowie, James	B
7217	Talbot, Henry James	A	7261	Coombs, Joseph Henry	B
7218	Theobald, Geo. Richard	A	7262	Doupe, Nathan	B
7219	Anderson, Elizabeth Ellen	A	7263	Elliott, Matthew	B
7220	Appelbe, Minnie	A	7264	Earngay, Thomas Richard	B
7221	Burke, Rose	A	7265	Grant, Charles	B
7222	Beattie, Nellie Cecelia	A	7266	Holland, Charles	B
7223	Baird, Catharine Lavina	A	7267	Hamlen, Robertson	B
7224	Barltrop, Susanna Hayden	A	7268	Hall, William	B
7225	Baillie, Mary	A	7269	Jamieson, Geo. W	B
7226	Chapman, Emma Dora	A	7270	McPherson, John G	B
7227	Climie, Jessie Rose	A	7271	Shearer, Thomas	B
7228	Currelley, Tillie J. D	A	7272	Solmes, Wm. Richard	B
7229	Cogan, Mary	A	7273	Wade, Geo. Harrison	B
7230	Eagle, Annie Louise	A	7274	Watson, John	B
7231	Fyle, Rebecca Catharine	A	7275	Wanless, James	B
7232	Gould, Wilhelmina Fordyce	A	7276	Wilson, Eli	B
7233	Goodwin, Mary Amelia	A	7277	Wilson, George	B
7234	Hyndman, Margaret T	A	7278	Burritt, Mary Ada	B
7235	Kennedy, Edith Alice	A	7279	Butchart, Martha	B
7236	Marshall, Jeanette	A	7280	Baxter, Alice	B
7237	Moir, Mary Ann	A	7281	Brown, Mary Ann	B
7238	Manro, Margaret K	A	7282	Bowes, Annie R	B
7239	McKechnie, Catharine Jane	A	7284	Barrington, Sarah E	B
7240	McCallam, Margaret	A	7285	Cameron, Sarah	B
7241	Nicol, Mary Euphemia	A	7286	Carey, Annie	B
7242	Preston, Emeline Augusta	A	7287	Chapman, Annie	B

PROVINCIAL CERTIFICATES.

No.	Name.	Grade.	No.	Name.	Grade.
7288	Duncan, Jane E. W.	B	7305	McPherson, Edith	B
7289	Douglass, Margaret	B	7306	McKim, Elizabeth	B
7290	English, Annie	B	7307	McColl, Annie	B
7291	Evans, Bella	B	7308	McMaster, Henrietta	B
7292	Evans, Annie	B	7309	Noecker, Mary Emma	B
7293	Ferguson, Edith Annie	B	7310	Ross, Robina	B
7294	Grieve, Isabella	B	7311	Rutherford, Theresa Mary	B
7295	Halls, Zaidee	B	7312	Sutherland, Catharine Gordon	B
7296	Harrison, Persie A.	B	7313	Spark, Georgina	B
7297	Kennedy, Charlotte I.	B	7314	Stalker, Sarah	B
7298	Keith, Agnes W.	B	7315	White, Beatrice Maud	B
7299	Kelley, Louisa Matilda	B	7316	Walter, Matilda Eliza	B
7300	Livingston, Margaret	B	7317	Wildren, Ethel Bertha	B
7301	Morrison, Jean	B	7318	Walker, Eliza Ann	B
7302	Mulholland, Sophia J.	B	7319	Woolcott, Minnie	B
7303	Morrison, Annie	B	7320	Wright, Ellen Mennon	B
7304	Misener, Ruth Vrooman	B	7321	Whittington, Annie Jane	B

OTTAWA NORMAL SCHOOL.

7322	Brown, George Lang	A	7372	McRobie, Elizabeth M	A
7323	Bruder, William John	A	7373	Phillips, Alice Henrietta	A
7324	Carr, Wm. Thornton	A	7374	Rees, Laura W.	A
7325	Campbell, Calvin Victor	A	7375	Rose, Cassie	A
7326	Campbell, Walter Albert	A	7376	Skinner, Barbara	A
7327	Campbell, William John	A	7377	Smith, Annie G.	A
7328	Corbett, Matthew	A	7378	Stevens, Ann E.	A
7329	Field, John Morden	A	7379	Taylor, Elizabeth G.	A
7330	Francis, James	A	7380	Tyle, Menia S.	A
7331	Harnwell, Henry James	A	7381	Woods, Louise M.	A
7332	Morris, Frederick	A	7382	Yemen, Jane F.	A
7333	McDonald, Neil	A	7383	Asselstine, David P.	B
7334	McGinnia, John	A	7384	Baker, Frank G. H.	B
7335	McQueen, James Faulkner	A	7385	Beavis, Reuben B.	B
7336	Parker, John Robert	A	7386	Brown, Henry	B
7337	Ramsay, George Henry	A	7387	Donohoe, Thomas	B
7338	Scoville, Holland R.	A	7388	Lochart, Alfred	B
7339	Stewart, Wm. Albert	A	7389	Morrison, Wm. George	B
7340	Thompson, Wm. James	A	7390	McDonald, James	B
7341	Thorne, James	A	7391	Walker, Edward M.	B
7342	Tremear, Charles H.	A	7392	White, Robert Oliver	B
7343	Wilson, John Tully	A	7393	Wight, Edward C.	B
7344	Boles, Charlotte	A	7394	Blair, Margaret Ann	B
7345	Brown, Minnie	A	7395	Buck, Josephine	B
7346	Burrows, Annie	A	7396	Coleman, Esther J.	B
7347	Campbell, Elizabeth Margaret	A	7397	Crawford, Beattie A.	B
7348	Crosby, Annie	A	7398	Estey, Catharine J.	B
7349	Elge, Margaret	A	7399	Evans, Annie P.	B
7350	Giles, Edith	A	7400	Gertley, Eliza	B
7351	Hamilton, Ida	A	7401	Gilles, Catharine M.	B
7352	Harley, Janet	A	7402	Givlin, Ella	B
7353	Hewton, Sarah	A	7403	Henry, Margaret	B
7354	Hislop, Mary Jane	A	7404	Hepburn, Janet	B
7355	Inkster, Elsie	A	7405	Hoover, Mary E.	B
7356	Johnston, Emily	A	7406	Howard, Emma	B
7357	Johnston, Mary	A	7407	Jack, Jennie	A
7358	Kennedy, Martha	A	7408	Johnston, Jane	B
7359	Long, Margaret	A	7409	Morrisette, Lilla	B
7360	Lovick, Charlotte	A	7410	McDougall, Ellen	B
7361	LeRicheux, Ada E.	A	7411	McGrath, Margaret	B
7362	Macklin, Nellie	A	7412	McLaurin, Elizabeth	B
7363	Mark, Harriet	A	7413	McRae, Alice	B
7364	Martin, Jennie	A	7414	McRobie, Nellie	B
7365	Murray, Bella	A	7415	Ritchie, Jean	B
7366	McDonald, Minnie	A	7416	Ryan, Nettie	B
7367	McKague, Elizabeth	A	7417	Shea, Margaret	B
7368	McLaren, Catharine	A	7418	Smith, Nettie	B
7369	McLellan, Elizabeth	A	7419	Thompson, Henrietta	B
7370	McLennan, Jennie	A	7420	Young, Annie Ida	B
7371	McNulty, Annie	A			

PROVINCIAL CERTIFICATES.

Certificates granted by the Minister of Education, 11th August, 1886, to Candidates who passed the First Class Examinations, July, 1886.

Professional.

First Class.

No.	Name.	Grade.	No.	Name.	Grade.
7421	Broderick, Gideon E.	A	7428	Park, Robert	A
7422	Bruce, Edward Wesley	A	7429	Robb, David	A
7423	Campbell, Neil W.	A	7430	Connolly, John	B
7424	Griffin, Albert D.	A	7431	Markle, Jacob H.	B
7425	Murray, Robert W.	A	7432	Sharman, George	B
7426	MacLean, Hugh S.	A	7433	Watson, Robert Bruce	B
7427	McIntosh, Angus	A			

Non-Professional.

7434	Ireland, William W.	A	7483	Jones, Samuel S.	C
7435	Longman, Edwin	A	7484	Lawlor, Frances A.	C
7436	McKim, Isabella F.	A	7485	Lund, Hannah	C
7437	Stuart, James Russel	A	7486	Luck, Lavinus Harry	C
7438	Sinclair, Arthur H.	A	7487	Moore, Addison E.	C
7439	Sterling, John	A	7488	Mance, Cora	C
7440	Smith, Allen C.	A	7489	Middlebro, Thomas	C
7441	Allan, Thomas	B	7490	Marshall, George E.	C
7442	Knight, William W.	B	7491	Mather, Oliver T.	C
7443	Middlebro, Thomas	B	7492	McArthur, John	C
7444	Norris, James	B	7493	McPhail, Alexander C.	C
7445	Alexander, Robert	C	7494	McConachie, Robert G.	C
7446	Annis, Mary	C	7495	McIntyre, Alexander	C
7447	Crawford, Edward F. W.	C	7496	McDonald, Nerva	C
7448	Caulfield, May Kate	C	7497	Norrish, Enos J.	C
7449	Campbell, Mary R. S.	C	7498	Nicklin, Benjamin J.	C
7450	Callander, Cyrus N.	C	7499	Noble, Orlando	C
7451	Colborne, Griffith J.	C	7500	Nelson, John	C
7452	Cronk, Phoebe Jane	C	7501	Oldham, Maria	C
7452½	Brough, Thomas A.	C	7502	Odell, Albert	C
7453	Bowerman, Lucy	C	7503	Pauli, Hannah M.	C
7454	Boyes, Robert	C	7504	Preston, Louie	C
7455	Brown, Malcolm D.	C	7505	Pringle, John	C
7456	Brien, Fred G.	C	7506	Perry, Joseph F.	C
7457	Barnard, Annie D.	C	7507	Rogers, Joseph W.	C
7458	Birchard, Alexander F.	C	7508	Rogers, James C.	C
7459	Bunnell, Effie	C	7509	Reid, Peter J.	C
7460	Breuls, Ira D.	C	7510	Rowlands, Ernest J.	C
7461	Bennett, Josiah	C	7511	Rothwell, Grace	C
7462	Bruce, Llewella	C	7512	Rose, Ada E.	C
7463	Doyle, Anna M.	C	7513	Smith, James H.	C
7464	Dickinson, James A.	C	7514	Stirling, John	C
7465	Elliott, Walter H.	C	7515	Shine, Timothy W.	C
7466	Eldon, Robert H.	C	7516	Scales, Annie	C
7467	Fennecy, Nettie	C	7517	Stuart, Alice	C
7468	Foster, James M.	C	7518	Smith, Peter	C
7469	Galbraith, Robert	C	7519	Stewart, John Smith	C
7470	Gray, George A.	C	7520	Smith, Thomas C.	C
7471	Gray, John Stuart	C	7521	Stothers, Robert	C
7472	Harding, Alice	C	7522	Smallfield, Amy E.	C
7473	Haynes, Edward M.	C	7523	Sherman, Edward C.	C
7474	Hinde, Edward W.	C	7524	Taylor, Stephen Y.	C
7475	Hoidge, Thomas Benjamin	C	7525	Tier, William	C
7476	Harvey, James A.	C	7526	Ventress, Amos B.	C
7477	Hislop, Jean	C	7527	Vokes, Robert E.	C
7478	Inman, William	C	7528	Williamson, George W.	C
7479	Johnston, James Linton	C	7529	Waddell, Katharine	C
7480	Jamieson, Rosina	C	7530	Walker, Thomas L.	C
7481	Johnston, George	C	7531	York, Henry Edward	C
7482	Johnston, Henry	C			

PROVINCIAL CERTIFICATES.

Certificates granted by the Minister of Education to Candidates who passed the Second Class Professional Examination, June 18th, 1886.

OTTAWA NORMAL SCHOOL.

Second Class.

No.	Name.	Grade.	No.	Name.	Grade.
7532	Lee, Thomas N.	B	7536	Lough, Mary E.	B
7533	Thompson, Charles	B	7537	Quinn, Annie	A
7534	Wren, John Thomas	B	7538	Webbe, Dora M. O.	B
7535	Greig, Annie M.	B	7539	Spankie, Minnie.	B

TORONTO NORMAL SCHOOL.

Second Class.

7540 | Buchanan, Thomas | B ||

Certificate granted by the Minister of Education to Candidate who has taken the required standing at the Matriculation Examination held at Queen's College, July, 1886, for I. Class Non-Professional standing, 12th October, 1886.

First Class.

7541 | Peck, Wallace..... | C ||

Certificate granted 23rd December, 1886, by the Minister of Education to Candidate who has passed the First Class Professional Examination December, 1885.

First Class.

7542 | Snell, Joseph A | A ||

Certificates granted by the Minister of Education, 17th December, 1886, to Candidates who passed the Second Class Professional Examination.

TORONTO NORMAL SCHOOL.

Second Class.

7543	Alexander, John A	A	7568	Dickson, Annie.....	A
7544	Burchill, John	A	7569	Duncan, Nellie O.....	A
7545	Charlesworth, John W.....	A	7570	Farrelly, Elizabeth	A
7546	Callander, Cyrus N.....	A	7571	Green, Matilda E.....	A
7547	Elliott, Walter H.....	A	7572	Gauld, Elizabeth	A
7548	Falconer, Wm. J.....	A	7573	Hammill, Nettie.....	A
7549	Graham, Jas. R.....	A	7574	Mans, Emma A.....	A
7550	Hutchison, Foster D.....	A	7575	Moore, Gertrude W.....	A
7551	Hind, Japheth	A	7576	Moir, Agnes C.....	A
7552	Hay, James Wm.....	A	7577	McCallum, Isabella.....	A
7553	Hinde, Edward Wm.....	A	7578	McCallum, Catharine.....	A
7554	Harper, John A.....	A	7579	McLung, Christina J.....	A
7555	Ingall, Elmer E.....	A	7580	MacFarlane, Rachel M.....	A
7556	Miller, Amasa Bishop	A	7581	McMaster, Minnie H.....	A
7557	MacEwan, Alex.....	A	7582	McLean, Barbara.....	A
7558	Rowan, Wm. Henry.....	A	7583	Nevills, Alice.....	A
7559	Rutherford, Jas. C.....	A	7584	Osborne, Lillian.....	A
7560	Strike, Alfred J. H.....	A	7585	Penwarden, Naomi.....	A
7561	Scroggie, Geo. Edward.....	A	7586	Phillips, Stella.....	A
7562	Silcox, Sidney.....	A	7587	Somerville, Belle.....	A
7563	Sproule, Archibald L.....	A	7588	Small, Mary L.....	A
7564	Smith, Wilson Robert.....	A	7589	Sturrocks, Laura.....	A
7565	Bale, Lida.....	A	7590	Tier, Margaret Brown.....	A
7566	Black, Isabel B.....	A	7591	Tighe, Nellie.....	A
7567	Cowan, Margaret.....	A	7592	Watson, Bertha G.....	A

PROVINCIAL CERTIFICATES.

No.	Name.	Grade.	No.	Name.	Grade.
7593	Wiggins, Charlotte	A	7628	Dingwall, Bella	B
7594	Zealand, Ida	A	7629	Disher, Jeanie	B
7595	Amos, Walter	B	7630	Dobie, Annie P.	B
7596	Braendle, Moses E.	B	7631	Downie, Mary T.	B
7597	Becker, Wm Henry	B	7632	Dyer, Minnie F.	B
7598	Carrie, James G.	B	7633	Flaws, Annabella	B
7599	Galbraith, Robert	B	7634	Forbes, Justina M.	B
7600	Graham, John C.	B	7635	Frame, Elizabeth	B
7601	Harvey, James Albert	A	7636	Glenn, Elizabeth	B
7602	Musgrove, George J.	B	7637	Gould, Ida Vincent M.	B
7603	Musgrove, Edward	B	7638	Gregory, Annie	B
7604	Malone, John	B	7639	Hunter, Margaret	B
7605	Murchison, Roderick	B	7640	Johnson, Jane E.	B
7606	McDonald, Donald A.	B	7641	Langstaff, Mary L.	B
7607	McCormack, Thomas	B	7642	Laing, Eliza	B
7608	Oliver, James Albert	B	7643	Murphy, Mary	B
7609	Peacock, Albert	B	7644	Mahoney, Mary	B
7610	Parker, Fred	B	7645	Mullin, Agnes A.	B
7611	Pardo, Thomas L.	B	7646	McBain, Jessie	B
7612	Rogers, John	B	7647	McDougall, Sarah N.	B
7613	Saigon, Henry Jas.	B	7648	McLeisch, Elizabeth	B
7614	Smith, Thomas C.	B	7649	McKenzie, Laura C.	B
7615	Whittington, Wm. Jas.	B	7650	McNeill, Mary	B
7616	Ainalie, Annie	B	7651	McWilliams, Margaret C.	B
7617	Anthony, Sadie	B	7652	Pearse, Jane	B
7618	Ball, Jane Irene	B	7653	Porter, Lottie V.	B
7619	Bright, Florence E.	B	7654	Rankin, Lillias P.	B
7620	Bonia, Margaret	B	7655	Robertson, Agnes	B
7621	Bowman, Sarah E.	B	7656	Shain, Frances A.	B
7622	Charlton, Jennie	B	7657	Wallace, Margaret I.	B
7623	Cleveland, Julia K.	B	7658	Walkington, Janet	B
7624	Crowley, Minnie	B	7659	Walton, Sarah	B
7625	Cruikshank, Jean	B	7660	Wilson, Janet A.	B
7626	Davidson, Lillie	B	7787	Burt, Catharine	A
7627	Dingle, Hattie M.	B			

OTTAWA NORMAL SCHOOL.

7661	Anderson, John M.	A	7690	Weatherhead, John B.	A
7662	Baldwin, Carman B.	A	7691	Boyd, Annie A.	A
7663	Barragar, David.	A	7692	Chamberlain, Mary L.	A
7664	Becker, Burton C. H.	A	7693	Cousin, Elizabeth L.	A
7665	Callary, Albert L.	A	7694	Davidson, Margaret M.	A
7666	Cameron, Casey M.	A	7695	Living, Florence M.	A
7667	Campbell, Angus	A	7696	Myers, Nellie A.	A
7668	Edsall, Julius M.	A	7697	McLennan, Elizabeth	A
7669	Hammond, Wm.	A	7698	McMichael, Margaret J.	A
7670	Hall, John Thomas	A	7699	Palmer, Annie B.	A
7671	Herbert, Robert	B	7700	Patterson, Maud	A
7672	Hicks, H. Elgin	A	7701	Pettit, Bessie M.	A
7673	Hough, Wm. Bell	A	7702	Phillips, Louise H.	A
7674	Jenkins, Wm. H.	A	7703	Purdy, R. E. Gertrude	A
7675	Johnston, George	A	7704	Rogers, Isabel H.	A
7676	Jory, E. Newton	A	7705	Underwood, Addie M.	A
7677	Leggatt, John	A	7706	Anderson, Wm. J.	B
7678	Long, Samuel	A	7707	Anthony, Wm. H.	B
7679	Massey, Daniel W.	A	7708	Baikie, Daniel	A
7680	McDonald, James V.	A	7709	Bentley, David B.	B
7681	Nichol, Charles O.	A	7710	Brien, F. Graham	A
7682	Pakenham, Wm.	A	7711	Connor, Wm. M.	B
7683	Shaw, Charlton	A	7712	Convey, George	B
7684	Sills, W. Ryerson	A	7713	Darling, Hiram	B
7685	Small, Wm. A. D.	A	7714	Dean, Reuben G.	A
7686	Smith, Peter	A	7715	Elliott, Thomas	B
7687	Teetzel, Manson D.	A	7716	Fallis, Wesley	B
7688	Thompson, Robert	A	7717	Gowan, Peter	B
7689	Thompson, Peter J.	A	7718	Hardy, Wm. A. G.	A

PROVINCIAL CERTIFICATES.

No.	Name.	Grade.	No.	Name.	Grade.
7719	Haynes, Edward M.	A	7738	Clark, Laura A.	B
7720	Hunter, Thomas John	B	7739	Eyres, Mary L.	B
7721	Jones, James Edward	B	7740	Fair, Rebecca	B
7722	Kerr, John James	B	7741	Fripp, Edith E.	B
7723	Latta, Samuel J.	B	7742	Fulford, Carrie E.	B
7724	Leavitt, Wm. Ezra	B	7743	Hall, Margaret E.	B
7725	Liddle, Wm. H.	B	7744	Hishon, Mary E.	B
7726	Moffatt, Wm. A.	B	7745	Kee, Alice M.	B
7727	Maloney, Paul J.	B	7746	McGregor, Margaret C.	B
7728	Morrice, Charles D.	B	7747	KcIntosh, Jemima	B
7729	Moyer, Isaac M.	B	7748	Peters, Williamina	B
7730	Merrill, Arthur L.	B	7749	Patterson, Matilda	A
7731	McVicar, John	B	7750	Potter, Clara H.	B
7732	Rundell, John A.	B	7751	Rose, Ada E.	A
7733	Simpson, Wm. J.	B	7752	Scarlett, Minnie B.	B
7734	Smelsor, Fred. G. H.	B	7753	Sharpe, V. C. E.	B
7735	Woods, James	B	7754	White, Carrie M.	B
7736	Yeo, Wm. Thomas	B	7755	Yeomans, Nettie C.	A
7737	Brosnahan, Margaret	A			

Certificates granted by the Minister of Education, 18th December, 1886, to candidates who passed the First-Class Professional Examination.

7756	Longman, Edwin	A	7772	Porter, Thomas M.	C
7757	Smith, Allen C.	A	7773	Porter, Thomas	C
7758	Stirling, John	A	7774	Rowlands, Ernest James	C
7759	Stuart, James Russell	A	7775	Sills, W. Ryerson	C
7760	McKim, Isabella Fanny	A	7776	Smith, Wilson Robert	C
7761	Middlebro, Thomas	B	7777	Ventress, Amon Byron	C
7762	Norris, James	B	7778	Wherry, Alex.	C
7763	Breula, Ira Delas	C	7779	Barr, Agnes	C
7764	Brough, Thomas Allardyce	C	7780	Gillespie, Fanny Leonard	C
7765	Collins, Thomas James	C	7781	Lund, Hannah	C
7766	Dickinson, James Arthur	C	7782	McDonald, Nerva	C
7767	Elliott, Walter Herman	C	7783	Paul, Hannah Mary	C
7768	Haight, Wm. A.	C	7784	Rose, Ada E.	C
7769	Innes, Alex. Richey	C	7785	Smallfield, Amy Eden	C
7770	Jewett, Albert E.	C	7786	Symington, Margaret P.	C
7771	Kaiser, Jessie Bennett	C			

7. TEMPORARY AND EXTENDED CERTIFICATES ISSUED DURING 1886.

COUNTIES.	Temporary Certificates authorized by the Minis- ter of Education during the year 1886.	Third Class Certificates extended by the Minister of Education during the year 1886.
Brant .....	..	1
Bruce	1	4
Carleton	13	5
Dundas	3	1
Essex	16	8
Frontenac .....	..	6
Glengarry	9	13
Grenville and 2 Leeds	29	1
Grey	16	14
Haldimand .....	..	1
Haliburton	1	..
Halton .....	..	1
Hastings	21	5
Huron	4	..
Kent	11	11
Lambton	1	1
Lanark	26	14
Leeds, No. 1	2	19
Lennox and Addington	1	6
Lincoln .....	..	4
Middlesex .....	..	7
Norfolk	24	1
Northumberland .....	..	1
Ontario .....	..	3
Oxford .....	..	1
Peel	1	3
Perth	1	1
Prescott and Russell	3	3
Prince Edward	1	4
Renfrew .....	..	5
Simcoe	5	5
Stormont	13	9
Waterloo	2	..
Welland	2	17
Wellington	1	4
Wentworth	1	16
York	2	5
Districts	49	2
Eastern Ontario R. C. S. S. .....	..	1
Totals, 1886	259	203
" 1880	310	409
Decrease, 1886	51	206

Of those receiving Temporary Certificates in 1886, 154 had previous experience in teaching.

Of the 203 teachers whose Third Class Certificates were extended, 21 had attained Second Class non-professional standing. Their periods of previous service were:—

Three years and under	112
Four to six years	61
Seven years and over	30
	203

**APPENDIX G.—SUPERANNUATED TEACHERS, TEACHERS WITHDRAWING
FROM THE FUND.**

1. SUPERANNUATED TEACHERS.

(CONTINUED FROM LAST REPORT).

Allowances granted during 1886.

No.	NAME.	Age.	Year of Teaching in Ontario.	Amount of Superannuation Allowance.
				\$ c.
774	Daniel Wright.....	74	18	108 00
775	Ellen Bowes	51	21½	129 00
776	William Boal ...	33	10	66 50
777	William Noble	51	22½	135 00
778	Alex. T. Rothwell.....	54	20½	129 00
779	Roderick Ferguson.....	56	30	180 00
780	James McGurn.....	50	32	205 50
781	Charles Shortt	64	24½	168 50
782	Samuel Joyce	64	22	152 00
783	Chas. MacKinnon.....	61	19	114 00
784	Stephen Henry Leighton	51	21	146 00
785	Clara Louisa Brown.....	39	13	90 00
786	Edwin W. Pillar	60	30	193 00
787	Stephen B. Cameron	62	35	210 00
788	J. W. Bingham	50	26½	175 00
789	Samuel Rothwell.....	61	24	164 00
790	Jeremiah George House	62	37	246 00
791	Wm. H. Bly	60	27	184 00
792	Eli Masales	60	34	225 00
793	Jno. Drummond	59	32	201 00
794	Jno. Clarke	67	8½	51 00
795-397	Jno. Mitchell	58	21½	147 50
796	Jno. Parke.....	60	34½	235 50
379	James Hodgson	75	33½	234 50
797	Alex. T. Leitch	47	19	130 00
798	Jno. N. Dochstader	46	23	138 00
799	Jas. McLean.....	39	13½	93 50
800	*Gilbert French.....	50	24½	155 50

* First payment to commence with January, 1887.

(2) *Summary for Years 1876 to 1886.*

YEAR.	No. of Teachers on List.	Expenditure for the year	Gross contributions to the Fund.	Amount refunded to Teachers.
		\$ c.	\$ c.	\$ c.
1876.....	266	31,768 82	12,647 25	1,252 83
1877.....	293	35,484 35	14,283 25	1,576 07
1878.....	339	41,318 95	13,767 12	1,591 64
1879.....	360	43,774 50	14,064 84	2,237 79
1880.....	391	48,229 13	15,816 45	3,252 92
1881.....	399	49,129 83	14,197 75	2,872 13
1882.....	422	51,000 00	13,501 08	3,660 10
1883.....	422	51,500 00	12,515 50	3,763 01
1884.....	443	54,233 93	15,802 50	4,037 59
1885.....	423	55,003 09	11,525 50	10,593 30
1886.....	440	58,791 37	18,095 29	6,046 05

2.—TEACHERS WHO WITHDREW THEIR SUBSCRIPTIONS FROM THE FUND DURING 1886.

Counties.	No.	Counties.	No.
Glengarry	5	Brant	7
Stormont	8	Lincoln	9
Dundas	2	Welland	11
Prescott and Russell	10	Haldimand	7
Carleton	24	Norfolk	8
Grenville	6	Oxford	28
Leeds	6	Waterloo	21
Lanark	6	Wellington	26
Renfrew	10	Dufferin	8
Frontenac	8	Grey	29
Lennox and Addington	8	Perth	22
Prince Edward	7	Huron	33
Hastings	14	Bruce	25
Northumberland	17	Middlesex	27
Durham	20	Elgin	11
Peterborough	17	Kent	13
Victoria	21	Lambton	14
Ontario	20	Essex	21
York	19	Algoma	3
Peel	10	Parry Sound	1
Simcoe	28		
Halton	8		
Wentworth	9		
		Total	607

APPENDIX H.—INSPECTION OF SCHOOLS.

1. PUBLIC SCHOOL INSPECTION.

(1) *List of Inspectors.*

NAME.	JURISDICTION.	POST OFFICE.
Donald McDiarmid, M.D.	Glengarry	Athol.
Alexander McNaughton	Stormont	Cornwall.
Arthur Brown	Dundas	Morrisburg.
William J. Summerby	Prescott and Russell	Russell.
Odilon Duford (Assistant for French Schools)	"	Curran.
Archibald Smirle	Carleton	Ottawa.
Robert Kinney, M.D.	Leeds, No. 1	Brockville.
Rev. George Blair, M.A.	" No. 2, and Grenville	Prescott.
Frank L. Michell, M.A.	Lanark	Perth.
Robert George Scott, B.A.	Renfrew and District of Nipissing	Pembroke.
William Spankie, B.A., M.D.	Frontenac	Kingston.
Frederick Burrows	Lennox and Addington	Napanee.
William Mackintosh	North Hastings	Madoc.
John Johnston	South Hastings	Belleville.
Gilbert D. Platt, B.A.	Prince Edward	Pictou.
Edward Scarlett	Northumberland	Cobourg.
William E. Tilley, M.A.	Durham	Bowmanville.
James Coyle Brown	Peterboro'	Peterboro'.
Charles D. Curry, B.A.	Haliburton	Minden.
James H. Knight	East Victoria	Lindsay.
Henry Reazin	West Victoria	Linden Valley.
James McBrien	Ontario	Prince Albert.
A. B. Davidson, B.A.	North York	Newmarket.
David Fotheringham	South York	Toronto.
Donald J. McKinnon	Peel and City of St. Catharines	Brampton.
James C. Morgan, M.A.	South Simcoe and District of Muskoka	Barrie.
Rev. Thomas McKee	North Simcoe	Barrie.
J. Scott Deacon	Halton	Milton.
Joseph H. Smith	Wentworth	Ancaster.
Michael Joseph Kelly, M.D.	Brant	Brantford.
James B. Grey	Lincoln	St. Catharines.
James H. Ball, M.A.	Welland	Thorold.
Clarke Moses	Haldimand	Caledonia.
J. J. Wadsworth, M.A., M.B.	Norfolk	Simcoe.
William Carlyle	Oxford	Woodstock.
Thomas Pearce	Waterloo	Berlin.
David P. Clapp, B.A.	North Wellington	Harriston.
J. J. Craig	South Wellington	Fergus.
Nathaniel Gordon	Dufferin	Orangeville.
Thomas Gordon	West Grey	Owen Sound.
Andrew Grier	East Grey	Thornbury.
Neil W. Campbell	South Grey	Durham.
William Alexander	Perth	Stratford.
Donald McG. Malloch	North Huron	Clinton.
John Elgin Tom	South Huron	Exeter.
W. S. Clendening	East Bruce	Walkerton.
Alexander Campbell	West Bruce	Kincardine.
John Dearness	East Middlesex	London.
Joseph S. Carson	West Middlesex	Strathroy.
Welbern Atkin	Elgin	St. Thomas.
W. H. G. Colles	East Kent	Chatham.
Wilmot M. Nichols, B.A.	West Kent	Blenheim.
Charles A. Barnes, B.A.	Lambton, No. 1	Forest.
John Brebner	Lambton, No. 2	Sarnia.
Theodule Girardot	Essex, No. 1	Sandwich.
David A. Maxwell	Essex, No. 2	Amherstburg.
Donald McCaig	District of Algoma	Rockwood.
Rev. George Grant, M.A.	District of Parry Sound	Simcoe.

List of Inspectors—Continued.

NAME.	JURISDICTION.	POST OFFICE.
Rev. R. Torrance	City of	Guelph.
W. H. Ballard, M.A.	"	Hamilton.
W. G. Kidd	"	Kingston.
J. B. Boyle	"	London.
John C. Glaahan	"	Ottawa.
John McLean	"	St. Thomas.
James L. Hughes	"	Toronto.
Rev. A. McColl	Town of	Chatham.
Rev. Robert Rodgers	"	Collingwood.
R. B. Carman, M.A.	"	Cornwall.
Rev. George Washington	" Meaford	Mono Road.
Rev. James Gordon, M.A.	"	Niagara Falls.
Rev. S. H. Eastman	"	Oshawa.
James Stratton	"	Peterboro'.
Thomas Hilliard	"	Waterloo.
Richard Harcourt, B.A., M.P.P.	"	Welland.
J. C. Patterson, M.P.	"	Windsor.

NOTE.—Other Cities and Towns are under the Inspectors of their respective districts.

Roman Catholic Separate School Inspectors.

James F. White, Toronto.

Cornelius Donovan, M.A., Hamilton.

County Model School Inspector.

John J. Tilley, Toronto.

High School Inspectors.

John E. Hodgson, M.A., Toronto.

John Seath, B.A., Toronto.

Inspector of Normal Schools and Director of Teachers' Institutes.

James A. McLellan, LL.D., Toronto.

(2) Extracts from Reports of Public School Inspectors.

COUNTY OF RENFREW, AND DISTRICT OF NIPISSING.

*Extract from Report of R. George Scott, Esq., Inspector.**County of Renfrew.*

Certificates.—As the result of the examinations held last summer, and subsequently at the end of the Model School term, there is now a full supply of qualified teachers for the schools of this county, and a surplus. This is the first time that this end has been attained, and the consummation is owing to the introduction of the District Certificate examination. Without this examination there would be no possible means of supplying the schools with legally qualified teachers.

Work of the Schools.—Taking a general survey of the schools of the county, I have to report that they are steadily approximating to a uniform standard of arrangement and classification. The general character of the work done is improving, and the number of pupils from rural schools coming up for admission to the High Schools is increasing.

Buildings and Furniture.—During the year ten new school-houses were built. They are all commodious and comfortable buildings, well lighted, and each one suitable to the requirements of its particular locality.

A steady improvement is taking place also in the matter of school furniture, and as the old cumbrous and unsuitable wooden desks wear out, they are being replaced by improved iron-framed desks.

The people deserve great praise for the willingness with which these improvements are provided. In no case has any semblance of compulsion been necessary, but in some cases they have anticipated or exceeded suggestions from me.

There have been no school difficulties or complications during the year.

District of Nipissing.

The seven schools reported may be divided into the following groups:—

1. No. 1 Mattawa.....in Mattawa Village.
 " 1 Springer.....in Sturgeon Falls Village.
 " 1 Widdifield.....in North Bay Village.
2. No. 1 Ferris.....
 " 1 McKim.....in Sudbury.
3. No. 2 Bonfield.....Rural.
 " 1 Lyell, etc.....“

Those of the first group are strong and efficient schools, engaging good teachers, and paying good salaries.

Mattawa and North Bay have commodious and well equipped schools. Each of them employ an assistant teacher.

Sturgeon Falls school-house, a very fair frame building. Equipment reasonably good, and no doubt will be improved as required.

No. 1. Ferris.—The school-house is an utterly unsuitable building, and of little or no value. It was originally located to suit the settlement at La Vase Creek. When the Canadian Pacific Railway was built, the track passed so close to the school-house as to render it advisable to change the school site. Before a new site was selected, the Northern & Pacific Junction Railway joined the Canadian Pacific Railway in the section about a mile and a-quarter west of the school-house. A population began to centre round the Junction, and of course a dispute arose as to where the new site should be selected, so that at present the ultimate location of the school is undetermined. I hope, however, that this year the matter will be settled, and a proper school-house built, after which there is no reason why a thriving school should not exist here.

No. 1. McKim.—Sudbury.—The school-house is an unsuitable building, badly lighted, and furnished with bad desks, and a small useless blackboard. Seven good new maps. Until shortly before my visit the premises had been rented from the C. P. R., but the Trustees informed me that they had concluded the purchase of the property and were then expecting the deed.

The population of the place is sufficiently large to support a good school, but as a great portion of it is French, a teacher who cannot speak that language labors under a disadvantage, especially with the young children when they first come to school, most of whom do not speak English or understand it. Apart from her want of knowledge of the French language, the teacher was thoroughly competent and efficient.

No. 2. Banfield.—School-house convenient to a station on the C. P. R. This school is subjected to all the unfavorable conditions of a rural school in a new settlement; still the people manifest a lively interest in its success, and as good work is being done as could reasonably be expected under the circumstances.

No. 1. Lyell and Murchison.—This is the weakest and most remote school in the district. The population of the section is small, and the section itself too poor to pay a good teacher. Even if a good salary were offered it is very doubtful if a competent teacher could be induced to go to a place so far out of the way, and so difficult of access. As yet very little, if any, good has resulted from this school. The settlers, however, have resolved to strain a point, and if possible, get a competent teacher.

COUNTY OF BRANT.

Extract from Report of M. J. Kelly, Esq., M.D., Inspector.

The progress of the Public Schools of the County and of the Town of Paris, in the interval since the date of my last report has been, on the whole, highly satisfactory, as I think, the result will show. The equipment of the several school houses, which was fully reported last year is constantly improving, as is the character of the work done therein. The order and management of the schools is generally good. Where frequent changes are made and inexperienced teachers employed it is not to be expected that proficiency will invariably mark such a policy. Between twenty and thirty new recruits are added to the profession every year in this county, and of course, as in other walks of life, "The many fail, the few succeed." Failure at the outset does not however necessarily mean failure altogether. A bad impression may be removed, loss of prestige may be regained, if the teacher is possessed of the requisite tact, honesty and ability. To be successful he must be, as the French say, "*en rapport*" with the pupils; to be permanently successful he must be a gentleman first and a scholar afterwards. I make these observations here because I have heard within the last few months, complaints of the want of success of a few of our young teachers, and I desire to enter a plea in their behalf, which my experience in the past warrants.

During the last half of the year, copies of the new School Law and Scripture Readings were mailed or otherwise sent to the Secretary-Treasurer of the several school sections of the county. The new Compendium of School Law and Regulations is a great improvement on the old one; and the topics being better arranged under their respective headings, the ordinary lay reader will encounter much less difficulty in finding and understanding what he wants. The new Scripture Readings, too, will be found serviceable. The selections are from the Old and New Testaments—are arranged in lessons of suitable length under appropriate headings, and have received the approval of a syndicate of clergymen of the several churches. They are under the following headings: Part I—Historical. Part II—Devotional, Didactic, Prophetic, Moral. Part III—The Gospels. Part IV—The Acts of the Apostles. Part V—Selections from the Epistles. It is the duty of all public school teachers to open their schools with the Lord's Prayer and to close them with the reading of the Scriptures, the Lord's Prayer, or the prayer sanctioned by the Department of Education.

1. *Teachers' Certificates.*—Seventy-four teachers were employed in the schools of the county during the year with the following grades of certificates:

(1) Provincial first class, 4. (2) Provisional second class, 36. (3) Old Country Board first class, 1. (4) New County Board third class, 32. (5) Interim, 1. The first class teachers were employed in No. 1, Oakland, No. 8, South Dumfries, No. 20, Brantford and No. 16, Burford. The whole number of teaching days in the year is 220. The average number of days during which the schools were kept open was 210.

2. Drawing is on the new programme to be taught in all the classes of the Public Schools. The study of this subject has received a great impetus of late from the establishment of the Royal Society of Canada under the auspices of the

Marquis of Lorne and Her Royal Highness the Princess Louise, and the Ontario School of Art under the patronage of the present Minister of Education. The fact that some knowledge of the art of drawing has now become indispensable to the successful pursuit of many of the industrial arts, is a sufficient warranty for its encouragement. Specimens of the work done in our public schools have been sent to the Department in Toronto for transmission to the Colonial Exhibition soon to be opened. Photographs of the city school buildings were also sent for the same purpose. I would gladly have added photographs of many of our rural school houses, which would have reflected credit on the county, but the trustees to whom I spoke about the matter complained of the expense.

School Houses and Equipment.

3. (1) *Brantford*.—No new school houses were erected during the year, but several have received additional equipment. In Langford school a large new stove has been provided. There are nice flower pots in front of the school-house, but some more trees are needed in grounds, as several of those planted several years ago have died. In No. 16 Brantford there are 6 framed chromos, 6 framed mottoes, curtains on windows, 5 statuettes of poets and a library. The grounds have been reenclosed by a nice, new picket fence. Some new maps are needed and a larger globe. Evergreen trees in the grounds also desirable. They have not yet decided on a site for a new school house in No. 4. In No. 5 (Mount Pleasant) more equipment is required and the outhouses are in a bad state. No. 6. Since my last report 8 framed mottoes and 2 framed chromos have been purchased. There is also a good clock, a twelve-inch globe, with a nice stand for it. The grounds should be enlarged and the window shutters painted. No. 7 (Burtch School) has a very large attendance, 76 pupils being present at my last visit. An assistant has been since employed. Mr. Dale who had taught in the section 7 years ago is again the Principal. Evergreen trees have been planted in the grounds of No. 8, a well equipped school. In No. 9 the library needs additional books. A new globe is also required. In No. 12, one of the best furnished schools in the county, 20 new Windsor chairs have been added to the equipment. In No. 17 since last report, 8 additional framed chromos, among them one of the Queen and one of the Prince of Wales, have been purchased, making now 11 in all, also a new chandelier with 3 lamps. In No. 18 a new shed has been built. In No. 20, one of our best schools, in addition to the equipment reported last year, there have been provided new maps of the world and of the British Isles, new music books, new tablets, a museum case and a second book case, also a statuette of Dickens.

(2) *S. Dumfries*.—No. 2 has been furnished with an organ, a small globe, and some new maps. A library is about to be added. Evergreen trees have been planted in the grounds. No. 5 (Silver Street School).—To the equipment of this school has been added, since last report, 8 framed mottoes and 8 framed chromos. A new globe is needed. In No. 6, the furnace which seemed to be a very fine one, not having given satisfaction, recourse has been had to stoves. No additional equipment. No. 7 (Harrisburg) has been supplied with a small library. The trustees promise to plant trees in the grounds next "Arbor Day." No. 8 (St. George) has added to its equipment four framed chromes, one being of the Queen. No. 10 (Turnbull's or Little's School) has been provided with a fine large globe, a numeral frame and 4 nicely framed chromos. It has storm windows. There are evergreen trees among the maples in the fine play grounds. No. 12 (Ayr Road School) has slatted blinds on windows, but still needs a library and chromos. The teachers have been changed in the last two schools, gentlemen succeeding ladies. No. 131 (Bruce School) has been supplied with a new outhouse and a considerable addition has been made to the library. Classification somewhat defective. In No. 14 (Glenmorris) floor and walls clean, a number of flowers in pots on window sills. In grounds many young maples planted. Attendance usually large. Chromos needed to adorn the school room. In No. 27 (McLean's School) furniture good, as is also the heating apparatus, good clock, window curtains, 6 chairs for visitors, nice arm chair, small globe on iron stand. The library is large but more books on history, and dictionaries are desirable. Chromos and museum case needed. Trees should be planted on the north and east sides of the grounds. School, though small, is doing well under the present teacher.

(3) *Burford*.—In No. 1 there is a clock, globe, numeral frame, tablets, window curtains, maps enough, cupola and bell, wood house; the needs are dictionaries, a library, trees in the play ground. No. 3 (Princeton).—The teachers were changed in this school at the close of the year, a gentleman with a second class certificate succeeding a young lady with a third. The average attendance is about 40, clock and library, but no globe. dictionaries, chromographs, floor dirty, desks and seats satisfactory. No. 4 (Gobles), a new clock has been purchased, also window curtains and new tablet cards. A library, dictionaries and chromographs still required. The teacher, a young lady, who has been in charge several years, is still doing admirable work; several of her pupils have passed the departmental examinations at Woodstock. No. 5 (Block).—This school has a clock, globe, natural history plates, window curtains, but lacks dictionaries, library and chromographs. The grounds need a new fence and trees. The average attendance is about 20 pupils doing fair work. No. 6, (Force's) house needs painting, school supplied with new seats and desks, a clock, sufficient maps, floor and walls clean. Trees planted on "Arbor Day" and fence repaired; new well and pump; still needs a library, dictionaries and chromos. No. 7 (Cooley Pond).—This school has been furnished with new desks and seats, a clock, window curtains, dictionaries and good maps and presses, lacks a library and chromos; a number of additional trees planted on "Arbor Day" and flower beds made. A good well and pump and a new gate. Averages about 36 pupils. No. 8 (Burford Village).—Nothing worthy of note has been added to the equipment of this school since the date of my last report. It has nearly a complete outfit. The grounds have been somewhat improved. In the matter of progress the school still holds its own, as the results of the entrance and teachers examination show. No. 9 (Salem School).—This school has been supplied during the year with a clock, large bell in cupola, book-case and library, 4 framed chromographs, 2 framed mottoes, evergreen triangles on walls and a new woodhouse; still needs a globe and dictionaries; progress satisfactory. Subjects well taught, especially drill. No. 11 (Metcalf's).—The basement and vestibule of the school house are paved with brick. The fine school-room is heated from the basement by a large "North" heater. A library, dictionaries and chromographs needed; progress satisfactory; work done, good and thorough. No. 13 (Harley).—No improvement to be noted in the equipment of this school; still needs globe, dictionaries, and library; floor still dirty. No. 14 (New Durham).—No material addition has been made to the internal equipment during the year; additional trees have been planted in the grounds and flower beds made; a new woodhouse erected; average attendance about 40 pupils; progress and discipline satisfactory. No. 15 (Fairfield).—This school has been supplied with good desks and seats, dictionaries and maps, a new clock, a fine bell, cost \$30, and cupola; new woodhouse; trees planted in grounds; still lack a library and chromographs. Order and progress satisfactory. No. 16 (Northfield).—Large school-room fairly well equipped; needs new and more modern style of desks, and more trees in the grounds. Attendance is large, averaging about 50. Teachers changed at midsummer; school doing well under its new management. No. 18 (Scotland).—Rooms in fair order, clocks now in both; one framed chromograph, good fence, grounds divided, plenty of trees, but no evergreen ones; good well and woodhouse. Attendance fair, order excellent; dictionaries needed and more chromos. Teachers changed at close of year. No. 19 (Hatchley).—School-room clean and generally well furnished, windows curtained, 4 lamps suspended from ceiling, good organ; a globe needed and maps of the United States, North and South America. Ventilators in side walls and opening in ceiling. Meetings held in school room; result—gate left open and trees and flower beds injured. Fair work done. No. 20 (Hedgers).—In addition to the equipment mentioned in my last report, there are now an orrery, a tellurian, a numeral frame and a full supply of maps, also dictionaries. To the maples in the grounds are now added evergreen trees and rose-bushes. The teacher who has been in charge for several years and under whose management the school has taken a foremost place, left in October to complete his Arts course in the University of Toronto. No. 21 (Miles School) Union with No. 5 Oakland.—School room clean and well furnished, has now a library, cupola and bell; still doing work under an active, earnest, energetic teacher. No. 22 (Kelvin).—To the equipment may now be added a cupola and bell and in the grounds evergreen trees; still needed a globe, a library and chromographs. No. 23

(Trimbles).—This school, which is fairly furnished, now boasts of a new clock and fine maps of the Dominion and the United States. Progress satisfactory. No. 24 (Cathcart).—Added here since date of last report, a new press, a small globe, Stormonth's dictionary, a clock which does not go, a new woodhouse and a new closet; grounds not yet enclosed. A library and chromographs still required. No. 25 (Mount Zion).—Here, in addition to the library (which should be enlarged), there are a large dictionary and six framed mottoes. A clock is needed and new maps and chromos. There are flower beds in play grounds. No. 26 (Tansley's).—School-room furnished fairly well, floor clean, but walls want whitewashing; curtains on windows, maps enough, globe still out of repair; needs a clock, library, dictionaries, chromos and more chairs; a woodhouse and good fence, but more trees in the grounds desirable. The average attendance should be over 30. Work done, satisfactory; order good.

(4) *Onondaga*.—No. 2 (Middleport).—Nothing added to the equipment of the school room here since date of last report. The library should be enlarged, and dictionaries, chromographs, etc., supplied. The floor, too, should be scrubbed and swept more frequently. Some trees were planted in the grounds on "Arbor Day" but more are needed. No. 4 (New England).—Walls whitewashed, floor clean, a good clock, a small globe, a pronouncing dictionary, a new calculator, new door and new locks. Grounds well planted; circular flower pots in front of school house; order and management of school excellent. No. 3 (Mulligan's).—This school has a small library, good globe, new tablets, good well, cupola and bell; outhouses satisfactory; needs dictionaries, chromographs, etc., also trees in the play grounds; doing very satisfactory work. No. 5 (Onondaga Village).—Teachers were changed here at the close of the year. A library and dictionaries still needed. Equipment otherwise good; attendance usually large; work done satisfactory. No. 6 (Hunter School).—This school needs addition to its library, a globe, dictionaries, chromographs, some new maps and more trees in the play ground; of those planted some years ago only three survive. Fair work done.

(5) *Oakland*.—No. 1 (Union with 2 Townsend).—The position of seats and desks changed—pupils now facing the north. Woodwork of school-room painted blue, also of lobby. New floor; blackboards repaired, 2 new stoves, cupola and bell, new woodhouse painted brown with white cornices; grounds well planted with trees. A well furnished and well managed school. No. 2 (Oakland Village).—This school has been supplied with new pupils' and teacher's desks, grounds reinclosed by a new picket fence painted white. Approach to grounds is by stile and not by gate. Additional trees planted and flower beds in grounds. There are needed a library, globe, new maps, clock needs repair; generally a satisfactory school. No. 4 (Thompson's School).—A fairly equipped school; 2 dictionaries in 4 vols., globe and maps enough, seats and desks need repairing, 2 new brick outhouses erected, also new woodhouse. New pump, plenty of trees in play grounds. Teachers changed at close of year.

4. *Arbor Day*.—The Minister of Education has appointed a day in May of each year to be observed in all rural public schools, and to be known as "Arbor Day." During the forenoon the teacher is expected to instruct his pupils in relation to the benefit of arboriculture, etc., and with them and the trustees to devote the afternoon of the day to tree planting, laying out flower beds and cleaning up the school yard. On last "Arbor Day" 397 trees were planted in the school grounds of the county. Our grounds had been already very generally planted, else the number would doubtless have been greater.

5. *County Model School*.—The session of this school, lasting three months, was held during the last half of the year. Twenty-eight candidates attended the lectures, all of whom passed the professional examination at the close.

6. *Entrance Examinations, etc.*—At the first examination at Midsummer 121 candidates wrote in Brantford, the largest number that has yet written at any single time here—49 boys and 72 girls. Of the total 72 came from the rural schools and the balance from the Central and Separate schools of the city. 108 passed. Of the successful candidates S. S. No. 21, Burford, sent up 2; No. 20, Burford, 4; No. 5, Onondaga, 4. No. 18, Brantford, 2; No. 2, Brantford, 4; No. 12, Brantford, 8; No. 4, Brantford,

1; No. 16, Brantford, 3; No. 1, Brantford, 1; No. 8, Burford, 7; No. 24, Burford, 3; No. 14, Burford, 1; No. 15, Burford, 1; No. 25, Burford, 1; No. 8, S. Dumfries, 3; No. 3, Onondaga, 1; No. 2, Onondaga, 2; No. 4, Onondaga, 1; No. 6, Onondaga, 4; Norwich school, 5; Jerseyville, 2; Beaconsfield, 2. At Paris No. 11, S. Dumfries, passed 2. At the December examinations 98 wrote in Brantford and 71 were provisionally passed. The following schools outside of Brantford passed candidates as under:—Mohawk Institute, 4; No. 6, South Dumfries, 1; No. 4, Brantford, 2; No. 8, Brantford, 1; No. 9, Brantford, 1; No. 10, Brantford, 3; No. 12, Brantford, 1; No. 16, Brantford, 2; No. 20, Brantford, 1; No. 1, Brantford, 2; No. 3, Burford, 1; No. 19, Burford, 1; No. 15, Burford, 1; No. 8, Burford, 1; No. 17, Burford, 1; No. 4, Onondaga, 1; Jerseyville, 1; Alberton, 1; Springfield, 1. At Paris No. 1, Brantford passed 1, and No. 12, South Dumfries, 2.

The Langford School passed 2 for 3rd class certificates, the Burford School 1. No. 20, Burford, 2 for 2nd class and 1 for 3rd, and No. 12, Burford, 1 for 2nd.

These results indicate unmistakably the progress of the Public Schools of this County.

7. *Indian Schools.*—The 12 Indian Schools in the Township of Tuscarora were inspected in June, and a report of their state of efficiency and progress sent to the Minister.

8. *Uniform Promotion Examinations.*—These were held the last two days of March last year and will be held on the same days this year. The question papers have been already mailed to the several schools.

9. *City of Brantford.*—In its early days Brantford seems to have possessed no organized system of public instruction. A remote hamlet of the old Gore District, nestling on the banks of the Grand River, and surrounded by the red men, it possessed few advantages beyond those of trade with the Indians and such as the navigation of those days afforded. Ancaster and Hamilton were the favored places. Although the school-master was abroad, his presence was fitful and his stay usually short.

The first school in what is now the city of Brantford was held in a two story frame building on the market square, and which served for town hall, court room, meeting-house and school-house. This was about 1826.

The first grammar school in Brantford was held in the small frame cottage on Nelson street, where the fine residence of J. H. Stratford, Esq., now stands. This was taught by Mr. Richard Tyner, an honor graduate of old King's College, Toronto, in 1853-4-5.

In the following year the grammar school was united with the common schools of the town, and remained so for nearly ten years, when a separation took place. Since then the High School has become a Collegiate Institute; the small brick cottage in the East Ward, with its two teachers, has been exchanged for the present elegant and commodious structure on George street, with a staff consisting of a head master, first and second classical masters, a first and second mathematical master, a master for the modern languages, an English master, and a teacher of painting and drawing. The attendance approaches 300.

In 1852 there were three public school houses in Brantford, with six teachers, and a total enrolled attendance of 785 pupils. In 1885 there were four school houses, superior and spacious brick buildings, with thirty teachers and an enrolled attendance of 2,152 pupils. The average attendance at the first date was 324 or 41 per cent.; at the last date it was about 70 per cent. The amount paid in salaries in 1852 was \$1,860; last year it was \$9,720. The amount received from legislative and municipal grants was \$1,272, against \$3,200 from the same sources in 1885.

Two promotion examinations were held during the past year, just before the close of the half-yearly terms, with the following results: Number of pupils examined at the close of the first half-year, 849, number passed, 585; at close of second half-year, 1,356 examined, and passed 574.

The number that passed at the entrance examination to the Collegiate Institute in July, was 38, in December, 37.

At the County Model School, the session of which extended over three months, 28 candidates attended, all of whom passed the third-class teacher's professional examination at the close.

Nothing has transpired during the year in connection with the teaching and discipline of the schools calling for special mention in this report.

14. *Town of Paris.*—The schools of Paris have made very satisfactory progress during the year. At the midsummer departmental examinations the High School won high distinction. The ten public schools of the town are well taught and well managed. The order is generally excellent. The financial position is also encouraging. The receipts during the year from all sources were \$7,365.66. The expenditure \$4,068.08, leaving in hand a balance of \$3,297.58. The amount paid in salaries (public school department) was \$3,225. The highest salary paid male teacher (only one in the schools) was \$600. Highest salary paid female teacher \$350. Eight out of the ten teachers received a Normal School training. Eight hold 2nd class provincial certificates. Two, 3rd class provincial certificates. 671 pupils were registered during the year—223 boys and 348 girls. The attendance is fairly regular. There are 126 in 1st part of First Reader; 117 in 2nd part; 140 in 2nd class; 198 in 3rd and 90 in 4th class. From the senior 4th class 26 pupils passed the entrance examination during the year.

COUNTY OF CARLETON

Extract from Report of A. Smirle, Esq., Inspector.

1st. *Teachers' Salaries.*—Compared with adjacent counties, the salaries might be considered good; but, when compared with the remuneration received in other professions or employments, for less arduous labor, it is clear that the Public School teacher is underpaid. In the rural districts, where the cost of living is never calculated, it is not easy to convince trustees that less than \$400 a year is inadequate compensation for the services of a qualified teacher. This state of things will continue until teachers set a proper value upon their services, and by a united effort demand salaries in some degree commensurate with the cost of living, and the increased outlay in preparing themselves for the work. Speaking in a general way, I find that a good teacher usually commands a fair salary. Having once made his usefulness felt in the neighborhood, his trustees are reluctant to part with him; but when a change has to be made, there is always a disposition to throw the situation open to competition, the lowest offer receiving the appointment, regardless of differences in the qualifications, teaching experience, and indeed all else than salary. Our people do not discriminate between the trained and the untrained teacher. They place the Third Class, or for that matter the "Permit," in competition with the highest grade of certificate. I am not an advocate of fixing, or even supplementing salaries by legislation, but I am of opinion that some effort should be made to elevate the standard by which the public judge of the efficiency of a teacher, also to cultivate a more liberal spirit on the part of trustees in estimating the value of his services. A judicious distribution of professional literature amongst the trustees of rural sections, would, no doubt, have a good effect. It seems to me that we might revert to the old system of supplying, gratuitously, each board of trustees with a good educational periodical. I feel sure such would be read with much deeper interest than the *Journal of Education* was in former years. Trustees appreciate gifts of this kind, and through such a channel, I have no doubt, the way would be opened to many a useful reform.

2nd. *Teachers' Certificates.*—It will be seen from the reports that there has been quite an increase in the number of teachers holding the higher grades of certificate. We have this year two Provincial Firsts, and forty-eight Seconds, as compared with one First, and thirty-nine Seconds in the previous year. We have still twenty-six "Permits" in the inspectorate, a number, in my opinion, by far too large, when the circumstances justifying the issue of such are fully taken into account. There are at the present time

about ten sections in the county, which, from sparseness of population, contracted bounds, or other unavoidable cause, are not able to offer sufficient inducement to secure the services of a legally qualified teacher; but then there are at least twenty others which, from force of habit, or over-indulgence, are always on the list of applicants for unlicensed teachers; and so persistent are they that, in some instances, schools are allowed to remain closed for a few weeks at the beginning of the year, in order to strengthen their claims to favorable consideration.

3rd. *School Population and Pupils*.—The information given in the report under this heading I consider fairly accurate, with the exception of column No. 28, which asks for the “number of persons of all classes and creeds between the ages of five and twenty-one years resident in the section on the 31st December.” I have reason to believe in many cases the figures given are largely the result of guess-work. Generally the estimate is too low, being made to correspond with the total number entered on the register for the year, a state of things, which in point of fact, very rarely occurs. In cases where trustees are too conscientious to approximate, the blame is usually thrown upon the assessors.

The attendance of pupils shows a small decrease since last report. This, I believe, to be largely due to the late spring, and prolonged harvest. I noticed that the “winter classes” were nearly a month later in being formed in the rural schools than they were in the previous year. The extending of the holidays by trustees, in the suburban schools, will also help to account for the falling off. Apart from all these considerations, however, the attendance should be larger and much more regular. The compulsory clauses of the school law have not, to my knowledge, been enforced in any part of the inspectorate; still the very fact that such a law exists, has to some extent improved the attendance. The weak point seems to be the want of an executive officer. The statutes also appear to be so guarded that it would be almost impossible to prove negligence, and to secure a conviction. Trustees, I fear, will never undertake voluntarily, such an unpopular work.

4th. *School Accommodation* is rapidly improving. In the Townships of Osgoode, Gloucester and Nepean alone, there will be an aggregate of 15 new school houses completed within the space of three years, and all of a roomy and substantial character. My experience goes to prove that, if we can only give the country a supply of spirited teachers, active and earnest workers, there will be no trouble in securing accommodation and appliances for carrying on the work. There is no more important factor in the make-up of a teacher, than the possession of power to enlist the sympathy of the people in his work, and thus to arouse them to a sense of their responsibilities in the matter of educating their children. He who can do this may accomplish a great deal in the way of improving school accommodation, and providing properly equipped schools.

5th. *Model School Work*.—My last report upon this subject shows that the result of the session's work was most satisfactory. I regret, however, to have to state now, that we are likely to be without a Model School for the next year, the trustees of New Edinburgh having declined to allow their school to be used longer for that purpose. There are but two schools in the county that come up to the requirements of the law, and neither of these is available, owing to the prevalence of a feeling that it is detrimental to the progress of a school to place the classes, even occasionally, in the hands of students. The very fact of a large and populous county like Carleton, having no school coming up to the requirements of the law (the two previously mentioned are suburban schools), to my mind suggests the idea that the requirements of the law are too high. I cannot see that it is necessary to have every Model School graded—in fact, it seems to me, that as Third Class teachers are almost exclusively employed in rural sections, it would be much more practical that they should receive their professional training in an ungraded school. There they would see and perform work similar to what they are most likely to engage in. I repeat here what I have substantially affirmed in a previous report, viz.:—*That neither our Provincial nor County Model Schools can, under existing circumstances, properly exemplify rural school work.* Sound Model School practice is a very important part of the professional training of a teacher, but in order that the student may get the full benefit of such practice, he should be trained in a school which is a pattern or model after which he can fashion his own classes. I think it may be safely said that a student, who has had three months' professional training in a well classified rural school, under competent

instruction, is more likely to succeed in rural school work than one who has taken the usual County Model School course. Why then ask for so high a standard in a County Model School? Would not a school with *three, two, or even one* teacher accomplish the end in view, provided an additional room and an assistant were available during the term? I hold in high estimation the services rendered to the cause of education by our Model School masters and their assistants, but, to me, it has always appeared an anomaly, that no attempt should be made to illustrate the organizations, classification, and practical working of the country school. Until this is accomplished the Model School will fall far short of its mission, and the teachers sent out therefrom will charge these institutions with having in a measure, taken up valuable time to no practical purpose.

COUNTY OF DUNDAS.

Extract from Report of Arthur Brown, Esq., Inspector.

It will be seen that the standing for the County for 1885 is somewhat below that of 1884, while that for the townships is higher. The falling off is due to the villages of Morrisburg and Iroquois, and was caused, I think, by a lack of teaching equipment. An additional division of the Morrisburg Public School was opened last fall; the Iroquois School Board propose to open another in their school, and these will remove the difficulty referred to.

It is a significant fact that, of the 39 schools which advanced their standing in 1885, only 15 changed their teacher, or a little less than 40 per cent.; while of the 27 schools in which a lower standing was made, 23 or nearly 90 per cent. changed teachers.

The number of promotions made in 1885 compares favorably with that of the previous year, and corresponds with a similar increase in those who passed the Entrance Examinations to the High Schools of the County. The latter were for 1884, 78, and for 1885, 128. Both of these indicate efficient work in the Public Schools.

The average attendance of pupils has recovered from the depression of 1884, and for the year lately closed was in advance of that of 1883.

Considerable improvement in school accommodation has been made in the last two years. In No. 3 Williamsburg, an ample site has been bought, and a very handsome school-house built; in No. 7, Matilda, the school site has been enlarged; in No. 8, Matilda, an ample site has been secured, and one of the most roomy, comfortable, and best ventilated school-houses that can be found any where, has been erected; in No. 3, Winchester, an additional lot has been bought, and a tasty school house for the Primary Divisions of the School, has been built; in No. 2, Mountain, a large and substantial stone school house has been erected; in No. 18, Mountain, a new site has been purchased and fenced, and a comfortable school-house built. In many sections trees have been planted, houses and grounds improved, and in not a few cases, needed improvements in other sections are promised for the current year.

On the whole, I think substantial progress has been made during the past year in the way of better teaching, more regular attendance of pupils, increased numbers passing Entrance Examinations, fewer changes of teachers, better remuneration for efficient teachers, improvement in school houses and their surroundings, and greater interest by trustees and parents in the success of their schools. I have to thank trustees, and parents generally, for their kind co-operation in all efforts to promote the efficiency of school work.

COUNTY OF DURHAM.

Extract from Report of W. E. Tilley, Esq., Inspector.

This Report is not prepared with special reference to the system of promotion examinations in the rural schools, but for the purpose of calling attention to some

matters pertaining to the well-being of all the schools under my charge, especially to such items as relate to the health and comfort of the pupils.

On my first visit, after my appointment in June, 1884, I found the schools, generally, in charge of efficient and pains-taking teachers; whose efforts, for many years prior to that time, directed and strengthened by the able and energetic supervision of my predecessor, Mr. J. J. Tilley, had given the schools of Durham a high rank among the public schools of the Province. I believe that this standard of efficiency has been maintained and a fair degree of progress made during the past two years. The teachers, in my opinion, are earnestly endeavoring to do their work well, and the trustees, with few exceptions, display a deep interest in the welfare of their schools.

School-Houses, Furniture and Requisites.

There are in this Inspectorate, 104 school-houses, of which 70 are brick, 33 frame or concrete, and 1 stone. Some are in good repair and are very suitable for school purposes, but many are not what they should be, considering the comparatively short time they have been in use. Some were badly built, or have been badly cared for, the foundations being defective, and the walls, in consequence, warped and cracked. Very frequently the water from the eave troughs, instead of being conveyed to a drain, is allowed to wash out holes at the corners of the building, and, by the aid of frost, after working its way beneath the foundation, to twist the walls and ruin the structure. A rural school-room is seldom easily heated in winter, as the walls are all exposed to the weather. This difficulty is greatly increased when the foundation and the walls are defective, the windows loose or panes of glass broken, the doors out of repair or lacking proper fastenings, and the floor thin and worn through in places. Storm windows should be more generally used than they are.

Much has been done during the two years towards improving the school buildings and furniture. Some rooms have been re-plastered and others lined with narrow boards, neatly painted. In several schools, new seats and desks of modern pattern,—models of neatness and convenience, have been provided. Some sections, however, are much behind in this respect. It is still possible to find schools in which the teacher's desk is nearly four feet high, and where the only seat for either teacher or visitor is a rickety stool, nearly double the height of an ordinary chair. The blackboards, in some instances, are all that can be desired, but in others they are neither good in quality nor convenient for use. Frequently they are too high, quite out of the reach of pupils; to overcome this defect, high clumsy benches are placed against the walls, which generally add to the inconvenience of using the boards freely by either the teacher or the pupils. The blackboard should extend completely across one end of the school-room; the north end, if not broken by door or window, is preferable; it should be at least four feet wide, with its lower edge within twenty seven inches of the floor or platform. Where a platform is supplied, it should be not less than five feet wide, nor more than five inches high, and should extend the whole length of the blackboard.

The schools are fairly well supplied with maps, though too many of them still lack good maps of the World, Dominion of Canada, and Ontario; several are without convenient globes for use in teaching geography, and but few are supplied with a good dictionary or a gazetteer.

The school law provides that there shall be at least 250 cub. ft. of air space for each pupil, where the ventilation is such as to cause a complete change in the air of the room not less than *three times* an hour; the ventilation to be effected by adjusting the windows, both sashes, by weights and pulleys. The Provincial Board of Health recommends 1000 cub. ft. and, with a good deal of emphasis, gives 500 cub. ft. as the minimum for each child, where the air is changed *six times* an hour. The trustees can readily determine whether or not their rooms satisfy the legal requirements as regards size. The question of ventilation is not so easily determined; it should be remembered, however, that school-room ventilation is frequently very imperfect.

School Grounds and their Conveniences.

The school sites are generally well located, high, dry, and easy of access. There are instances, however, where the selections were made without due care; the yards being either low and swampy, or situated on hillsides where the land is light and easily furrowed by the spring and the fall freshets, while some are very inconvenient to reach in winter, as the roads leading to them are not much used.

The usual size of the grounds in rural sections, is one-half acre, which in my opinion is much too small. Neither baseball, football, nor cricket, can be played with satisfaction in grounds of less than two acres, especially when provision is made for school-house, wood-house, well, and outbuildings; proper portions fenced off or screened as private resorts for the girls and the boys respectively; and all surrounded and ornamented with trees and shrubs. The water supply, too often, is far from being satisfactory; in many yards there is no well, and frequently where a well has been provided, the water is unfit for use. This is the case, not only where the trustees, through carelessness or indifference, have allowed the pump to get out of order, or the covering of the well to become defective, but also where, apparently, they have done all that can be expected of them to provide good water. It may be the result of some lack of care in finishing the well; perhaps it was not lined with water-lime, the earth around it raised to throw off the surface water, and the platform tightly laid to prevent the waste water from the pump leaking through, and mingling again with the water in the well. The health of the pupils, especially in rural sections where children take their dinners and hence are away from home comforts all day, demands that a good well and other conveniences be provided in each school yard. The closets commonly are too small, too much exposed, rough in construction and untidily kept. They are frequently without doors that can be properly fastened, or walks leading to them, and hence in winter are unfit for use. In many sections, the accommodation in this respect has been greatly improved, but much still remains to be done before it will be in keeping with the wealth and comfort indicated by the home surroundings of the pupils.

Arbor Day.

There were 1,139 trees planted on Arbor Day, 1885, a large proportion of which are still living, judging from the reports lately received from the teachers on last Arbor Day. I cannot give the exact number for this year, 1886, as the returns are not quite complete, but estimate that at least 1,000 trees were planted. If, therefore the necessary grounds were provided by the trustees, which could be done in most sections at a comparatively small outlay, the teachers, pupils, and ex-pupils, with their many friends, in a few years, would have them in good order by their efforts on these occasions. Frequently, in rural sections, the school yard is the only place for public games of any kind, hence all should take a pride in having it neat and convenient, to be used not by the pupils only, but by the people of the section, also, on all proper occasions. I have thought it best to give here some extracts, from the reports of the teachers this year, to show what a pleasant and profitable outing last Arbor Day was in their sections. A double effect is secured by these exercises, as pupils who take an active part in improving their school surroundings, will be equally interested in keeping them neat and tidy throughout the year. In schools where taste and neatness are displayed in connection with the school premises, the pupils are generally well behaved, and in my opinion, do their school work much more thoroughly and pleasantly than they otherwise would. The following extracts are selected with a view to variety, both in locality and circumstances, two at least being taken from each township. For want of space the number is necessarily limited; I have therefore withheld the names of the teachers who sent them and the number of the sections to which they refer.

Male Teacher.—"We planted no trees, none required. Walls and ceilings whitened; floor scrubbed and room decorated with evergreens, mottoes, etc. Yard thoroughly cleaned and a new sidewalk built from the school house to the front gate. We are to have a new fence as soon as a man can be secured to build it."

Male Teacher.—"We had a pleasant time on Arbor Day this year. Ten trees and some shrubs were planted, the yard made more level and some parts gravelled. Twelve trees out of the twenty planted last year are still living. After the work was finished, the visitors were asked to be seated and to listen to readings, dialogues, and recitations by the pupils. Every one went away pleased with the way the day had been spent."

Male Teacher.—"Two trees were planted on Arbor Day and the old trees trimmed. The yard was thoroughly cleaned, low places filled up, trees all protected, boards nailed on the walks and the fences, and a number of plants placed in the school-room. Several of the parents took an active part in the proceedings, which were brought to a close by the boys playing a game of football. Our yard is good but too small."

Female Teacher.—"I felt almost discouraged at the prospect before us last Friday; the children and myself tried hard to get the parents to help us this year. They all professed to sympathize with the movement, but were too busy. However, the children were eager to do what they could, and some ex-pupils volunteered their help. I taught till 11:30 and then we all went to the woods for trees, but as most of my helpers were young, we had to be content with small trees. In the afternoon we cleaned the yard of chips, which was no light task as the wood last winter was all cut on the grounds; planted twenty-five trees, most of them maples; set fire to some stumps and rooted out one or two. Eight trees of last year's planting are still alive."

Male Teacher.—"On Arbor Day this year twelve trees were planted, besides a number of lilacs, rose bushes, and other flowering shrubs. A small flower garden was also laid out and planted with flowers, seeds, etc. The wood was neatly piled and all the stones and sticks picked off the yard; the fence repaired, and the gate fastened with a chain and weight, so that it might not be left open. Flowers also were brought and placed on the teacher's desk. A programme of readings, recitations, etc., had been arranged for the last hour of the day, but lack of time causing it to be postponed till next Friday afternoon, a short spelling match was substituted. The trustees were all present during part of the day."

Female Teacher.—"We had quite a pleasant Arbor Day this year; we planted twenty-six trees, made two rockeries in which we planted flowers, thoroughly cleaned the yard, repaired the fence, and decorated the school-room. In fact our time seemed to pass away so quickly that we almost forgot about dinner. We left the school grounds about half-past four, and although tired, we felt better for our change of work. *Change is rest.*"

Female Teacher.—"There are fifty-six trees of last year's planting still alive. This year we planted no trees, but the boys raked the yard, piled the wood neatly in the shed, and decorated the room with cedar. The girls washed the windows and the wood-work, scrubbed the floor and varnished the stove. We are getting some new pictures for the school-room, which were not quite ready on Arbor Day, but will be in a few days."

Male Teacher.—"We began work with fifty-one pupils. We removed stones from the yard and repaired the fence in the forenoon. The yard was quite covered with stones when we started. In the afternoon we went for trees and planted twenty-four maples, fifteen balsams, and one spruce, in all forty trees. The school-room also was washed by the scholars, after having been lime-washed and a little plastering done. The ceilings are now clean and white. We have some plants in the room and a few pictures on the walls; we intend to decorate with evergreens."

Female Teacher.—"There are forty-three trees living of the forty-eight planted last year. This year we planted a hedge along the west side of the yard—108 evergreens in all; levelled the yard in front of the school-house, and cleaned up generally."

Female Teacher.—"I have just come from school, pleased with the work of the day. My pupils too, were delighted; they all brought shrubs, roots, and flower seeds with them. We cleaned up the yard, planted the shrubs, roots, etc.; then all went to the woods for trees. We brought back twelve maples and planted them along the fence. My pupils worked hard, and I think all went home ready for a good night's sleep."

Male Teacher.—"This year on Arbor Day, we planted one hundred evergreens; there were already fourteen maples on the grounds; school yard made neat and tidy; floors cleaned and walls whitewashed; outbuildings and fences in good condition."

Male Teacher.—"There are seventeen good trees on the ground. I think most of them were planted last year. I planted twenty young maples this year with the assistance of my pupils, all of which are small. We made four flower beds, converted an old stump into a flower pot, took out another stump, and cleaned the grounds generally."

Male Teacher.—"On Arbor Day this year, there were sixteen maples planted and some flower beds formed. The yard was cleaned and the school-room tidied up; the floor repaired and the stove and pipes cleaned. The scholars turned out in full force and worked well. It is, I believe, the first time Arbor Day has been kept in this section. All are pleased with the results."

Female Teacher.—"The pupils and myself cleaned the school-room and decorated it with evergreens. The yard was raked, all rubbish burned, and some artistic flower beds made in front of the school. One of the trustees, with the school boys, planted forty-two trees—some maples and some ironwood. Several ex-pupils took a very active part in the work."

Male Teacher.—"Five trees of last year's planting are now alive. This year we planted six more, made three flower beds and planted them; thoroughly cleaned the school-room, and decorated it with evergreens. The scholars brought a nice lot of flowers for the windows. A few loads of gravel would be a benefit to the yard in some places, and especially the immediate approaches to the school-room. Improved ventilation also would make the school work, if not more effective, at least more pleasant."

Promotion Examinations.

The nature of these examinations and the purposes for which they were established, were fully set forth in the reports of my predecessor of 1882 and 1883. I shall not, therefore, refer to them at any length here. At each of the four examinations held since my appointment, an average of 700 pupils wrote and 550 passed. I have endeavored to remove any element tending to make the examinations competitive in their working, and hence the results as regards the respective schools have not been published; with the results placed before the public, and comparisons instituted, the temptation to overcrowding in work and hence to injudicious promotions becomes, in my opinion, too great, especially in the case of inexperienced teachers.

Besides conducting the two promotion examinations, I have visited each school and department twice each year.

COUNTY OF ELGIN.

Extract from Report of W. Atken, Esq., Inspector.

While last year I reported forty-five temporary certificates, this year I am pleased to say that I have none to report. All the teachers are of second or third class. As a result of this change a great difference is noticeable in the character of the work done. More teachers are looking forward to remaining in the profession a longer time, and are trying to make themselves familiar with the best methods of teaching.

My work in the schools is largely taken up with methods; as yet I have given little attention to the progress made by individuals in the classes.

The Teachers' Institutes are recognized by the teachers as great helps to them.

In addition to the County Institute, I am organizing Township Institutes throughout the county, hoping to get the teachers to take up the excellent reading course mapped out by the Department, systematically. Already it is bearing fruit. Another object of the Township Institute is to give the young teacher an opportunity to talk about his work. If he talks about it, I am sure he thinks about it.

As for our excellent Model School, one of the greatest helps the Department has given the teacher, is filling our schools in Elgin with a superior class of young teachers.

You will see that all pupils are not reported as taking spelling, writing, drawing, and arithmetic. One of the greatest difficulties I have met is to get teachers to follow the Provincial programme as laid down by the Department. I shall soon have this properly arranged.

Irregular attendance exists in Elgin as elsewhere.

Compulsory Education is still a dead letter in Elgin. Ninety-seven children between the ages of seven and thirteen were not at school at all during the year, and 1,705 attended less than 100 days, as required by law.

Our schools in Elgin are becoming better equipped with the necessary apparatus, as advised in the Regulations.

Before closing I wish to mention the system of promotion examinations we have adopted in Elgin.

While I am not in sympathy with the percentage examinations, especially with Junior classes, the classification was so unintelligent, and teachers in most cases so powerless to make proper classification, that something was necessary to set the classes in order. We therefore decided to adopt a plan of setting papers for the teachers, leaving the examining and promotion in their hands.

Both teachers and pupils show more interest in their work.

Altogether I look upon the past year as a prosperous one in our Elgin Schools.

COUNTY OF HALTON.

Extract from Report of J. S. Deacon, Esq., Inspector.

The Late Inspector.—The sudden death of our late Inspector, after nearly fourteen years of faithful service in that office, rendered the year a painfully eventful one in the educational history of the County.

The late Robert Little needs no marble or granite to perpetuate the memory of his untiring labors in the cause of education. The many commodious school-houses, erected in Halton since 1871, are substantial monuments of his perseverance. The successful training of two generations of pupils to habits of neatness, accuracy, and industry, is a work whose importance can scarcely be over-estimated.

I never met with Mr. Little; but the documents left to his successor in office, convince me that his labors were simply herculean, and in attending to even the minutest details he acted on the principle "That whatever is worth doing at all is worth doing well."

Inspection.—I inspected all of the eighty-five schools and departments of the county before the Christmas vacation, and made notes of the attendance, management, grounds, etc.

I examined every class pretty thoroughly in reading, writing, spelling, and arithmetic, and arrived at the following conclusions:

Reading is very well taught in about 40 per cent. of the schools; monotony and indistinctness are too prevalent in the others. Correct spelling, by dictation, varied by classes from 40 to 100 per cent., the average being about 75, which may be considered very good.

Writing was judged from the dictation exercises and from the copy books. The slate work was generally very neat and the writing good; the copy books were not remarkable either for neatness or for good writing. I would estimate the slate work at an average of 75 per cent., and that upon the copy books at 35.

In several schools the slate work in Writing and Arithmetic was worth from 90 to 100 per cent. for neatness.

Slate Arithmetic varied in correctness, by classes, from nothing to 90 per cent., the average being about 40.

Mental Arithmetic is well taught in less than 25 per cent. of the schools.

There is great need of improvement in Practical Arithmetic, both mental and written.

So far as time permitted, I gave oral exercises, more or less thorough, in Geography, History, Grammar, and Composition, to the third and fourth classes of nearly every school. My object in these oral drills was: (a) to develop and test the thinking capacities of the pupils, (b) to enable me to form an estimate of the mental training they had received, and (c) to test, incidentally, their knowledge of these subjects.

Comment upon this portion of my inspection is reserved for a future report.

In respect to order, the schools may be classified thus; 25 per cent., excellent; 40 per cent., good; 30 per cent., fair; and 5 per cent., very bad.

There are many excellent teachers laboring under serious disadvantages, such as (a) mismanagement of previous teachers; (b) irregular attendance; (c) unsuitable accommodation; (d) too many pupils for one teacher, etc., etc.

Change of Teachers.—A serious hindrance to the progress of rural schools is the frequent change of teachers.

Many sections seem to have contracted the habit of changing teachers every year. Very often, these changes are made for the most trivial reasons; the teacher may have succeeded admirably in his management of the school, but, unfortunately, he has given offence by his outspoken opinions or by his impartial dealings, to some one in authority, and he is compelled to seek a new field of labor, without the satisfaction of knowing *why* he is dismissed. Sometimes the change is made for financial reasons, the gain varying from ten dollars to fifty. Trustees are liable to consider as *equal* all teachers holding the same grade of certificate; some go further, placing on the same basis, *all who hold legal certificates* of any class, or grade. Such reasoning is no less fallacious than the argument that all physicians who have taken their degree, can be equally skilful in practice; that a minister who can produce his certificate of ordination, is competent to fill any pulpit; or that any lawyer who has been admitted to the bar, is qualified to undertake the conduct of a case involving fine points in constitutional law.

There were 36 changes at the end of 1885, 30 being in the rural schools, as follows: Trafalgar, 4; Nelson, 6; Nassagaweya, 6; and Esquesing, 14. Of the thirty-six teachers who retired from their schools, 3 went to study medicine, 7 to take charge of other schools in the county, and 13 to secure higher certificates.

Trustee Elections.—It is to be regretted that so little interest is taken in the election of school trustees. Frequently the office goes begging. As a consequence, the incumbent neither prizes his office, nor attends to its duties. The School Law imposes as a duty upon trustees, the frequent visitation of their schools. Nine of our schools were unvisited by trustees during 1885, and nineteen received less than one visit from each trustee. The number of visits to the eighty-five schools was 239, and of others 1,365; total for the year, 1,604.

School Houses.—In the sixty sections of the County there are sixty-one Public School-houses, of which twenty-five are brick, thirteen stone, and twenty-three frame or concrete. Many of these are in excellent condition; the class-rooms present a bright, inviting appearance; the fences, gates, and outbuildings are in good order, and the enclosures are in many cases planted with shade trees. These buildings are a credit to the sections in which they are located, and it is not unlikely that they add five to ten per cent. to the market value of farms in their neighborhood.

Considering the small amount of assessable property in S. S. No. 12, Esquesing, No. 2, Nelson, and No. 7, Nassagaweya, these sections deserve special mention for the excellence and neatness of their school accommodation. Preparations are being made to build a new school-house in S. S. No. 6, Nassagaweya.

There still remains in Halton, half a-dozen school houses, that for sanitary reasons, if for no other, should be completely renovated, or banished from human sight. A few excellent structures have a neglected appearance; the gates broken down; the yard bare; the fastenings off the door; the hooks broken; the windows dingy; the walls black, and the floor sadly in need of scrubbing. A very small outlay would dispel the gloom, and with it the lurking germs of disease.

Arbor day was observed in twenty-six sections, and 662 trees were planted; about eighty per cent. of these are reported as still living. Five sections report their grounds as previously planted with shade trees.

The average attendance in Milton was 64 per cent. of the number enrolled; in Oakville, 63; Georgetown, 58; Burlington, 53; Nelson, 51; Esquesing, 48; Acton, 46; Trafalgar, 46; Nassagaweya, 44; and in the whole county, 50.

Teachers' Certificates and Salaries.—(a) There were eighty-five teachers employed during last half of 1885. Of these forty-two were male teachers, and forty-three female.

(b) Three teachers held First Class Certificates; thirty-six, Second Class; three First Class (old County Board); and forty-three, Third Class. Twenty-nine had attended a Normal School, decrease, six.

(c) The highest salary paid a male teacher was \$650. The average salary of male teachers in the townships, including the incorporated villages, was \$432, decrease, \$7.00; of female teachers, \$309, decrease, \$12.00.

Entrance Examinations.—At the High School Entrance Examinations in July there were at Oakville twenty-eight candidates, of whom seventy-five per cent. passed, and at Milton, twenty-five, of whom fifty-six per cent. passed.

In December, there were at Oakville twenty-six candidates, of whom twelve, or about forty-six per cent. passed; and at Milton, thirty-four candidates, of whom twenty, or nearly fifty-nine per cent. passed.

Total Entrance Candidates, 113, of whom sixty-seven, or fifty-nine per cent. were successful.

Model School.—The Model School at Milton, under the management of Mr. Gray, is doing excellent work. I visited the school twice during the term which lasted from the 8th of September to the 10th of December. Seven ladies and twelve gentlemen were in attendance as teachers-in-training.

The Principal spent the first three weeks, and a portion of each week thereafter, in illustrating correct methods of teaching. The students made notes of these lessons for their future guidance, upon which they were afterwards examined. From a minute inspection of these note-books, I formed a very favorable opinion of the quality and quantity of work done by the Principal and his students. The oral and written examination lasted three days, after which the answers were read by the Board of Examiners. The subjects of examination were: Theory of Education; Methods; School Law; Physiology and Hygiene; Drawing; Military Drill; Calisthenics and Practical Teaching. All the students received Third Class Certificates. Eleven of them are now engaged in the schools of this county.

Teachers' Institute.—The Teachers' Institute is in a flourishing condition. It possesses a good library, consisting chiefly of professional works.

The annual meeting was indefinitely postponed on account of the late Inspector's death, just previous to the date fixed for its session.

The semi-annual session was held in Milton on the 29th and 30th of October. Valuable papers were read by Messrs. Cook and Galbraith, of Streetsville High School, on History and Industrial Design, and by Wm. Houston, M.A., Toronto, on "Spelling Reform" and the Teaching of English. The subjects of Orthoëpy, Literature, and Geography, were introduced by local members of the Institute. The attendance was large, and the discussions were earnest and practical.

COUNTY OF LANARK.

Extract from Report of F. L. Michell, Esq., Inspector.

1. Summary.—County Financial Statement.

During 1885 the following sums were expended:

Total expenditure.....	\$42,326 36
Total receipts.....	47,003 33

I regret to have to report a decrease in the amount of the Legislative Grant. The larger the amount received from the central Government, the more equitable must be the cost of primary education to the country at large. The Municipal Grant depends upon the amount granted by the Central Government, and the larger this grant the more equitable the cost of Education to the county. Doubtless this decrease was unavoidable, but let us hope that it will not be permanent.

A step was made towards equalizing the art of instruction to all sections in the Act of last session, wherein it was made possible for each Municipal Council to grant the sum of \$100 to each section of a municipality towards the cost of maintaining a school. But as this clause is optional, it will, I fear, be not generally applied. Our grants bear a very insignificant proportion to the amount required for school purposes, as compared to those of other counties.

The amount paid for school buildings, sites, etc., during 1885 is about double that of 1884. Improvement in these matters goes on apace. Good school houses are common, if not general, and the trustees generally keep the school premises in good condition.

The amount paid for libraries, maps, etc., is in excess of that for 1884, though it is still disgracefully small for a county of the stability, wealth, and intelligence of Lanark. Supplementary education in the shape of healthy literature, will, I doubt not, soon be recognized as an indispensable adjunct to our Public School system. A good library should be found in each school section of the county.

2. Summary.—Teachers' Salaries, Certificates, etc.

The number of teachers employed in the rural schools during 1885 was 141, viz.: 1 Provincial First; 8 Provincial Second; 3 Old County Board First-Class; 101 Third-Class, and 28 temporarily certificated. Besides these the schools in the towns of Almonte and Smith's Falls have been placed under my superintendence. In these 17 teachers are employed.

The rural schools do not take advantage of the higher graded teachers prepared at the training institutions of Toronto and Ottawa. Very few Normal School trained teachers are employed in the county. There are many sections in which such teachers could be employed with advantage to all, but for the sake of a few dollars salary, teachers of an inferior grade are selected, to the detriment not only of the wealthy sections, but also of the poorer, which is thus deprived of a teacher possessing a professional training of any kind, and is forced to seek for one holding a permit only.

Professional skill seems to be ignored by the majority of trustees when engaging teachers. The salaries of male teachers range from \$600 to \$200; of females, from \$350 to \$250. The average annual salary of male teachers was \$345; that of females, \$200—in both cases a slight advance over those of 1884. The township of Pakenham paid the highest average salary (\$450) to male teachers, and the township of Ramsay to female teachers (\$221). The highest salary paid male teachers was \$600 in Almonte, Smith's Falls, Carleton Place and Pakenham.

3. Summary.—School Divisions and Sections, School Houses, School Visits, Examinations, etc.

The boundaries of the rural schools remain as at last report. The number of school sites is 123. In S. S. No. 1, Dalhousie, there are two sites, owing to the large size of the section, and two teachers were employed during 1885. The school law requires that when the school population exceeds 75, the area of the school site must be one acre. In several sections this clause has not been observed. In too many cases the ground chosen for the school site is utterly useless for this or any other purpose.

The number of schools and departments in operation in 1885 was 186, inclusive of those in the towns and incorporated villages.

The number of school houses was 134; 9 brick, 18 stone, 84 frame, 23 log. All the schools and premises are reported as freeholds.

The number of school visitors was 1094—an increase over 1884. The school would be much benefited by a more frequent and systematic visitation on the part of Trustees, Reeves, Councillors, Magistrates, etc.

The number of examinations (165) does not average two to each school. The regulation requires a public examination at the close of each term. The attendance at these examinations is in too many cases disgracefully small.

The number of lectures was 22; number of schools in which prizes were given, 77; and number of trees planted on Arbor Day, 1,040.

4. *Summary.—Maps, Libraries, Globes, etc.*

There are 813 Maps supplied for the use of the schools, or about 6 to each school, and 44 globes in use in the schools of the county.

Every school is supplied with one or more blackboards, but too frequently these are found either inadequate as to size, or almost useless as to condition. Tablet Reading Lessons and Numeral Frames are provided in many of the schools.

5. *Summary.—School Population and Pupils, etc.*

The number of persons between 5 and 21 was 7,785, according to the assessment of 1885. Of these 6,332 were entered upon the school register, 3,194 males and 3,138 females. The law requires that all pupils between 7 and 13 shall attend school at least 100 days. The number that did not observe the law in 1885 was 1,615. Trustees have now full authority to impose a rate of *one dollar a month* upon the parent of each child not attending the minimum of time required by law (chap. 49 sec. 217). If it is conceded that education is necessary to enable persons to perform the duties of citizenship, then such criminal neglect as reported above should not be tolerated. Parents who refused to educate the children under their charge, not only wrong themselves but wrong the children and wrong the State.

The following shows the attendance in each township and incorporated village:—

	No. Enrolled.	No. not Complying.
Bathurst	591	137
Beckwith and C. Place	1057	165
Burgess, North	259	92
Dalhousie and N. Sherbrooke	573	141
Darling	185	96
Drummond	472	56
Elmsley, North	367	148
Lanark and Lanark Village	632	146
Lavant	147	55
Montague	572	181
Pakenham	553	181
Ramsay	642	140
Sherbrooke, S.	283	74

Or an average of about 25 per cent. for the County. It is to be hoped that with so simple a mode of punishing delinquents in this regard the evil will soon be eradicated from the school system.

The number of teaching days for the first half was 125, for the second 95—total, 220, in the rural schools. In the incorporated village of Carleton Place the numbers were 123 and 84 respectively, or 207 for the entire year. The average time that the schools were kept open was 202. Elmsley again headed the list with an average of 218, and South Sherbrooke is lowest with 195.

The attendance of the 6,332 pupils enrolled during the year was as follows:—

(a) Less than 20 days in attendance	536
(b) Between 20 and 50 days	1032
(c) " 51 and 100 days	1589
(d) " 100 and 150 days	1469
(e) " 151 and 200 days	1366
(f) Over 201 days	340

The return shows one-quarter who did not attend any school during the year. The daily average attendance during the first half was 3133.67; during the second half 3158.42. This was about an average of 3146.04, or about 48 per cent. of the total number of pupils enrolled were at school each day. The average for the province for 1884 was 42 per cent. in rural schools.

6. Summary.—Classification of Pupils.

Arranged according to classes the pupils are divided as follows:—Part I. Class, 1,223; Part II. Class, 980; Class II., 1,549; Class III., 1,610; Class IV., 856; Class V., 115. The regulations, though framed with the view of affording a systematically graded and comprehensive course of study, allow modifications where circumstances seem to warrant. The subjects comprised in the curriculum for the first four classes constitute programme I. Those of the fifth class are similar to the work prescribed for third-class certificates; those of sixth class to the work for second-class certificates. Few pupils outside of the graded schools of Pakenham and Lanark take fifth class work. The official programme and instructions therefor are now in the hands of every teacher in the county. It is hoped that trustees will see that they are followed in so far as circumstances admit.

Miscellaneous.

VENTILATION, ETC.—I regret that more attention is not paid to school ornamentation, ventilation, and sanitation generally. The desiderata for a satisfactory school house in these respects are:—

1. The buildings should be constructed so as to be easily heated during the coldest weather, and the heat should be screened to secure uniformity of temperature to all portions of the room.

2. The building and outbuildings should be cleaned monthly, and swept and dusted once each day, either after the dismissal of the pupils or before their arrival. Care should be taken that the dust is entirely removed from the atmosphere before the room is occupied by the pupils.

3. The windows should in all cases be easily lowered from the top. The top sash should be made fast to a rope running over a pulley above the frame of the window, and thus the teacher could manipulate it from the floor.

4. A thermometer should be placed in each school and department, and trustees should insist on an equable temperature being maintained, not only for the comfort, but for the existence of the children. More teachers and pupils are rendered useless by badly ventilated school-rooms than from long hours of study, cramming, badly constructed desks, or any of the possible bug-bears so frequently complained of.

RELIGIOUS INSTRUCTION.—During the last year the authorized Scripture Readings were distributed throughout the county. Their object is to present the truths of the Bible in the form of complete lessons, with a view to the moral education of the pupils. The subject-matter was pronounced satisfactory by representatives of the leading denominations before the issue of the work. The regulations respecting the use of these readings are clear and explicit.

THE PUBLIC SCHOOLS ACT.—Copies of this Act in a compendious and neat form were distributed to the several School Boards of the county during 1885.

THE NEW REGISTERS.—Registers for the year are now provided. Such also contain the blank forms of the semi-annual and annual reports. The attendance for the first half is to be filled in and the register sent to the Public School Inspector as soon after the close of the half-year as possible. The register is returned to the teacher for use during the last half-year, when the blanks for the last half and annual report are filled in and the whole returned to the Inspector. New registers are provided annually. A pay-roll for the township instead of cheques to each section is now used for the distribution of the school grants.

ENTRANCE EXAMINATIONS.—Two Entrance Examinations were held during 1885—one in June and one in December. One hundred and eighty-four presented themselves in June, of whom one hundred and eleven were successful. In December, one hundred and thirty-six presented themselves and sixty-six were successful.

TEACHERS' EXAMINATIONS.—The Non-Professional Examinations for Teachers' Third and Second Class Certificates are held at each High School in the month of July. The programme of study can be found in the Official Regulations, page 133. Certificates obtained at these examinations give the holders thereof no authority to teach. Attendance at the Model School is compulsory.

MODEL SCHOOL.—This School is especially intended as a training institution in the professional work of the teacher, and the curriculum of study is framed towards that object. Practical teaching, either by the Principal or candidates, forms a leading feature. In our County Model School the Principal devotes his entire time and attention to Model School work. An extra teacher is provided by the Board to enable him to do so. Under this wise arrangement the Model School is in a very satisfactory condition. Thirty-one candidates were in training during last session, of whom twenty-nine were successful. There is now one annual session of 13 weeks, beginning on the second Thursday of September.

TEACHERS' ASSOCIATION.—The annual meeting was held in Perth under the direction of Mr. Tilley, Inspector of Model Schools. A very large attendance listened to a lengthy and entertaining programme during the two days of the meeting. A public lecture was delivered by Inspector Tilley, entitled, "Relation of Education to the State," which also was well received.

INSPECTION.—During the year I visited each school twice, though in one or two cases the school was closed at my last visit. I made also as many supplementary visits as time would permit. My examinations are partly oral, and partly done from papers placed upon the blackboard. Spelling in the majority of schools is greatly improved. The reading, too, was better than usual. Drawing is now taught in nearly every school. Writing is not taught satisfactorily. Time is given for the pupils to write, but many teachers do not *teach* writing. Arithmetic is generally well and practically taught. Composition and grammar are not taught intelligently in many of our schools. The subject matter of the lessons and appreciation of the work read are attended to much better than formerly. On the whole I am glad to be able to report substantial progress in the general methods of teaching amongst the teachers.

COUNTY OF ONTARIO.

Extract from Report of James McBrien, Esq., Inspector.

Surroundings.—A man's surroundings have much to do with the formation of his character. His mental pictures of his environment become the furniture of his soul, and either elevate or degrade him to a very great extent. "I am a part of everything with which I come in contact," so saith Tennyson. His daily associations with his surroundings, by virtue of the law of repetition, assimilated him to them, that is to say, form his tastes, habits, and character. Let us see, then, how this law of our existence is being carried into effect; for it is manifest that the surroundings of children should be made as choice and elevating as our means will admit.

Previous to Arbor Day, fifty school sections had planted out trees to the amount of 1,312, now living and growing in rural sections.

This number would give on an average about 11 trees to every school section in the county. According to the returns of trustees, 940 more were planted out on Arbor Day, making the noble sum of 2,252; or in other words about 20 trees for every section in the county. Some school sections have been enlarged and nicely prepared for planting next spring. The people of No. 6, Township of Uxbridge, at their last annual meeting,

voted \$25 to be expended in ornamenting their school grounds. Three cheers for the people of No. 6, Uxbridge. I hope to have dozens of others to cheer for, before this year is ended. The Trustees of No. 5, Un. E. Whitby; of No. 6, E. Whitby; of No. 1, Un. and No. 8, Pickering; of No. 7, Uxbridge; of No. 6, Reach; of Nos. 2 and 3, Thorah; and No. 5, Scott: all these and many others are worthy of honorable mention as leaders in the laudable and beneficial work of beautifying their school grounds. These are home-like, beautiful, and attractive. What improvement and progress from their former condition, which resembled a barn-yard!

However, the wheels of progress are revolving rapidly in this age. The establishment of Arbor Day, marks a new era in the history of the surroundings of our Canadian schools. The children of unborn generations, sitting beneath the grateful shade, sheltered from the heat of a boiling sun, will sing their songs of thankfulness for the institution of Arbor Day. They will be as happy, joyous, and free as the birds on the branches above them, warbling forth the blessedness which must be expressed. The conditions in which they must luxuriate are educationally suitable to them.

English.—The increased attention given to this subject by the Education Department meets the unqualified approbation of all except the lop-sided educational crank.

The influence of our educational system works from the top to the bottom as well as from the bottom to the top; hence the increased attention given to the study of English in our High Schools has a very salutary effect on the English of the Public School. The pupils of the Public Schools already have a clearer and more definite use of language than formerly. Thus they are daily receiving the key that will unlock any other subject they wish to study, and the basis for all future improvement. I am fully persuaded that if pupils had a readier and more definite use of English before they began the translation of Latin and Greek, their progress would be much more rapid and delightful; because they would not be harassed for want of tools to work with.

Drawing.—There is marked improvement in Drawing in consequence of the Art School established by the Department. Although the object in view is not to make skilful artisans nor accomplished artists, the cultivation of this subject may result in the attainment of both these objects. The educational effect is to cultivate the eye and the hand, that is to say, the taste, judgment, and habit of close observation. These are apt to lead to the cultivation of the higher arts, and thus save our country from the disgrace of importing her skilled artisans, etc. We are manifestly marching on the right line.

The frequent change of teachers, the so-called cheap teacher, the irregularity of attendance of the pupils—let these formidable and giant evils be removed so that our school system shall have fair-play.

COUNTY OF YORK, NORTH.

Extract from Report of D. Fotheringham, Esq., Inspector.

I.—FINANCE.

<i>Receipts.</i>	1885.	1884.
Balance on hand.....	\$7,241 71	\$6,834 82
Legislative grant	3,909 15	3,950 87
Municipal grant	2,972 68	3,179 84
Taxes on property	33,984 78	34,823 54
Clergy Reserve, etc.....	9,190 53	6,851 74
Total	\$57,298 85	\$55,640 82
In favour of 1885	1,658 03	

	<i>Expenditure.</i>	1885.	1884.
Teachers' Salaries.....		\$36,600 16	\$38,014 53
School Buildings.....		3,092 69	2,775 86
Maps, etc.....		174 74	164 55
Fuel, care, etc.....		8,432 00	7,375 78
		<u>\$48,299 59</u>	<u>\$48,330 72</u>

II.—TEACHERS' SALARIES, CERTIFICATES, ETC.

Paid in 1885, to Males.....	\$22,608 00	Females.....	\$14,767 00
" 1884, ".....	24,922 00	".....	11,875 00
" 1883, ".....	27,614 00	".....	9,555 00
No. Employed, 1885, Males.....	53	".....	51
" 1884, ".....	58	".....	47
" 1883, ".....	65	".....	36
Average Salary, 1885, Males ..	\$426 56	".....	\$289 55
" 1884, " ..	429 69	".....	252 66
" 1883, " ..	424 83	".....	265 62
Certificates, 1885, I. Class, 3..	II. Class, 41..	O.C.B., 4..	III., 55.. Inter. 1
" 1884, " 3..	" 44..	" 3..	" 53.. " 2
" 1883, " 3..	" 48..	" 6..	" 43.. " 2

III.—SCHOOL POPULATION, ATTENDANCE, ETC.

Enrolled in 1885.....	7,201 ; Average attendance.....	3,422.50.
" 1884.....	7,084 ; " ".....	3,181.27.
" 1883.....	6,926 ; " ".....	3,107.60.
Enrolled in 1885, in I. Bk., 2,659 ; II. Bk., 1,604 ; III. Bk., 1,620 ; IV. Bk., 1,224 ; V. Bk., 94.		
Enrolled in 1884, in I. Bk., 2,559 ; II. Bk., 1,772 ; III. Bk., 190 ; IV. Bk., 1,146 ; V. Bk., 61.		
Enrolled in 1883, in I. Bk., 2,324 ; II. Bk., 1,588 ; III. Bk., 1,815 ; IV. Bk., 1,173 ; V. Bk., 36.		

IV.—COMPARATIVE STATEMENT.

	1871.	1885.
Population of the division (5-16)	8,321 (about)	7,300
Average attendance	3,120	3,422
Percent of "	37 $\frac{1}{4}$	45 $\frac{1}{2}$
Pupils in the division for each teacher	105	73
School districts or boards	71	79
" sites adequate ($\frac{1}{2}$ acre or over)	31	79
" houses "	31	79
" " brick	14	27
" " frame	53	55
" " log	4	none.
" " total	71	82
" " built in 15 years .....	..	46
" " enlarged in 15 years .....	..	26
" " and sites, value	\$71,000	\$160,000
" " " expended on in 15 years...	..	\$100,000

	1871.	1885.
School-house accommodation for pupils.	6,468	11,414
Teachers' salaries average, males	\$361 33	\$426 56
“ “ “ females.....	\$243 25	\$289 55
Certificates, Provincial I. and II.....	20	44
“ Old County Board	42	4
“ New County Board III	21	55
“ Interim	2	1

From table No. 1, it will be seen that the receipts of 1885 exceeded those of 1884 by \$1,658.00, while the outlay was less by \$31.00. The amount paid on salaries was less by \$1,414.37; on building it was more by \$316.83; and on fuel, caretaking, etc., it was also more by \$1,056.22.

In the second table the principal point worthy of note is the steady increase in the proportion of lady teachers employed in the inspectorate.

The average salary of male teachers is a trifle lower than in 1884, while that of ladies is decidedly higher. This may be accounted for from the fact that trustees changing from one sex to the other, as a rule, give above the average for ladies, while they save considerable on the average for male teachers.

The third table meets the expectation expressed in the report for 1884 of an increase in the school population, which in ten or twelve years had fallen from 8,800 to 7,000.

It seems not inappropriate to compare the records of 1871 with those of fifteen years later, and I have therefore prepared table No. 4. This, in almost every particular, is highly gratifying, and little now remains to be done but to maintain the good condition of school property, advance the efficiency of the teaching staff and appliances, and secure greater regularity of attendance.

Some few school sections, large and formerly thinly settled, though supplied with new houses, have now become more thickly populated, and will require either to build a second house or be divided.

In only one or two cases have sections resisted to this day the pressure of the onward movement. One in the township of King is deprived of its grants for steadily resisting the demands of the laws of the Province and of health, though the present house, according to their own returns, was built before "The Rebellion of '37."

It will be seen on the erection of buildings and sites, that over \$100,000 have been spent in fifteen years, and that the value of property has during the same time doubled. Two good brick houses, built in No. 1 East Gwillimbury and Aurora have, during the year added their value to make the gratifying total of \$160,000.

That in Aurora deserves special notice, being one of the finest the Province can show in a country village, and costing \$12,000.

More than half our schools have been erected, and over one-third more enlarged in the fifteen years.

The improvement in accommodation is strikingly seen by comparing the air space provided now with that of 1871, knowing that while by law we require accommodation for 6,090, or two-thirds of our entire school population, we have the legal space for over 10,000 by the standard of 1871.

From hygienic considerations I do not think we have enough air space yet, for 250, the number of cubic feet of air now required for each of two-thirds of the entire school population, is notoriously inadequate for the purposes of health and comfort; and it is to be hoped our Legislature will soon yield to the wish of boards of health, doctors, and hygienists on this behalf.

Promotion Examinations.

These have now been conducted under the direction of the Teachers' Association for three and one-half years, and continue to give excellent satisfaction, and to improve the efficiency of school work.

At the seven examinations now held, 6,411 candidates have written, 33,337 papers have been sent out, and 3,078 certificates issued.

Teachers' Association.

First formed voluntarily, this organization, along with all others of the same character, is now demanded and supported by law. The usual attendance of teachers has now come up to seventy-five or eighty per cent. at our semi-annual meetings, which more than maintain their reputation for helpfulness and interest.

County Model School.

This institution holds a creditable position for good management and efficiency. Twenty-three students attended last session. All passed the final examination creditably. Most are now employed in the inspectorate, and their methods and manner compare favorably with those of young teachers trained elsewhere.

Allow me to state in conclusion that in the work of inspection during the fifteen years now ending, I have made about 3,000 official visits and hundreds of additional calls. I have made over 200,000 entries of the standing of pupils, from which the character of the work done in each school, and subject of study, could be ascertained and compared with that of any or all schools. In connection with official duties I have travelled 39,397 miles, apart from trips properly outside my work.

DISTRICT OF ALGOMA.

Extract from Report of Donald McCaig, Esq., Inspector.

I find that seventy-two schools in all have been reported as being in operation during a portion or the whole of the said year. These schools, attended by about 4,000 pupils between the ages of seven and twenty-one, have been taught by twenty-eight male and fifty female teachers, holding certificates classified as follows, viz.:—

Four 2nd Class Provincial, holders having attended Normal School.

Five 2nd Class Provincial, holders having not attended Normal School.

Forty-eight 3rd Class District Board, holders having not attended Normal and Model Schools.

Fourteen Inspector's Interim Certificates, and

One 1st Class Old County Board, holder having not attended Normal and Model schools.

The total annual salaries paid to these teachers have amounted during the year to \$20,258. Of this, \$11,120 have been paid to female, and \$9,258 to male teachers, making an average annual salary of about \$225 to female and \$416 to male teachers, which compares very favorably with the salaries paid in Ontario, considering the character of the certificates and the recent date of the settlements in the district.

With regard to the financial condition of the district so far as the public schools are concerned, I find that about twenty-nine thousand dollars (\$29,080.77) is reported as being received from all sources during the year for educational purposes. Of this about twenty-five thousand has been expended, leaving a balance of nearly four thousand dollars still in the hands of the trustees of the different school sections in the district. This, for a portion of the country so newly and sparsely settled as many portions of Algoma, manifests a very hopeful and praiseworthy condition of the educational affairs of the district, reflecting very creditably on the zeal and energy put forth by the late Inspector, Peter Maclean, Esq., in the discharge of his duties. So far one of the chief obstacles to success is the want of some training institution for young teachers, who annually receive their non-professional certificates from the local board of the district. This ought, if possible, to be remedied in the immediate future, by the establishment of Model Schools at such

points as Sault Ste. Marie and Port Arthur, with one, perhaps, on the Manitoulin Island. This, I am satisfied, would be the most effective means of improving the teaching capabilities, and consequently the condition of the schools in the district. The Model and Normal schools of Ontario are too distant and expensive to meet the requirements of the people of Algoma, but the educational advantages to be derived from them are too well assured, for any portion of the Province to be educationally successful without them.

I will only notice further, that as shown by trustees' reports, there is a lack of sufficient maps and other apparatus, which might be remedied without any great outlay on the part of the ratepayers of the various school sections, but which would greatly facilitate the labor of teaching, and render it more valuable and instructive to the pupils.

First, with regard to schools and teachers, I find that in the district at present there are about 85 schools taught by about 95 teachers. Of these 85 schools, two that were open during the first half, have been closed for the second half-year, and six new schools are either now open or are likely to be shortly. These six schools include two on Rainy River and one at Chapleau, on the C. P. R. The other three are two new schools on Spanish River and one at Neepigon. The schools on Rainy River and at Chapleau may not yet be in operation, but are likely soon to be.

As to Teachers' Certificates, there are in the whole district one First Class Provincial Certificate, ten Second Class Provincial Certificates, seventy-eight Third Class District Certificates, and six permits. In the whole district there are but thirteen male teachers, and nine out of the eleven Provincial Certificates are held by these; only two Provincial Certificates being held by female teachers throughout the whole district. About 90 per cent., therefore, of the whole teaching force of Algoma is represented by young girls holding Third Class Certificates granted by the local Board. All these have received their entire training in a few of the better schools in the district, and have never seen any other teaching, or received any other training than that thus obtained. Under these circumstances the teaching, as a whole, is of a very low order; except in a few instances where natural aptitude overcomes the defects of training, or rather the lack of all training.

CITY OF LONDON.

Extract from Report of J. B. Boyle, Esq., Inspector.

The Board of Education has now in its employment sixty-two teachers engaged in the various classes in the Public Schools of the city, exclusive of the music and drawing masters. In addition to these, three officers and thirteen janitors are employed in the work, while the number of school-houses is thirteen, and the whole number of scholars entered on the registers during the year, who have attended for a longer or shorter period, 4,800—2,491 boys, and 2,309 girls. As the schools in No. 5 Ward were incorporated with those in the other parts of the city only during the second term of the year, the average daily must be taken for these terms separately. For the first six months of the year, the average daily was 2,244; and for the last four the average was 3,042. The highest average in the first half was in June, 2,480; and in the second half the highest was in November, 3,172. A more correct view of the attendance at these schools may be obtained by taking the rolls month by month, striking off the names of all pupils who have left, and adding such new scholars as have entered during the month. By this process we find the monthly average, or a very close approximation to the *bona fide* attendance for the first six months, to be 2,841; and for the second term 3,772. The attendance, on the whole, has been very satisfactory, though the smallpox scare and some other things tended to lower the average, and interfere with the regularity of attendance.

Of the sixty-two teachers, ten were male and fifty-two female. The average salary of the former, as paid last year, was \$635.00. These salaries, prior, to the equalization that was made by the Board at the end of 1885, varied from \$900.00 to \$450.00; but,

for the current year, they will range from \$900.00 to \$600.00. The salaries of the female teachers averaged \$311.52, and varied from \$500.00 to \$250.00.

Of the ten male teachers in the employment of the Board during 1885, two held first-class certificates, and the others held second-class, grades A or B. Of the female teachers, five held first-class certificates of grades B or C, while twenty-three held second-class Provincial Certificates, grades A or B. Nearly all the remainder have second-class non-professional certificates, and four of these are attending the present session of the Normal School. By the end of the current year, very few of the teachers of the public schools of the city will be found without a Provincial Certificate of qualification. When the city teachers have shown such a laudable desire to secure a high rank in the profession, and prepare themselves thoroughly for the successful discharge of their high, onerous and most important duties, it ought to be a subject of serious consideration with the Board of Education and the community of London, whether the remuneration of these teachers be at all commensurate with the difficulties they have to encounter in the performance of their duties, the time, labor and expense incurred in preparation for the work of their profession, and the severe strain on both mind and body consequent upon the nature of their employment. We need not go outside of our own city to prove by absolute experience that none but an excellent constitution, physically considered, will long stand the strain to which it is subjected by the exhaustive nature of the employment. Many young and robust men enter the profession, and some with the intention of making this their life work; and yet we find them forced, after a few years spent in the performance of the arduous duties attached to this—one of the noblest of all professions, and the worst paid—to retire altogether from the work, or seek a relaxation, now and again, in order to recuperate. May we not ascribe the fact that so many young men who have, after diligent and long study, attained to the highest rank in the profession, thrown it up in disgust, to its offering neither honor nor a prospect of worldly independence? Will not these objections to the profession—the little honor, the less emolument to be gained, and the exhaustive nature of the work—account for the fact that, year by year, the best qualified young men are found withdrawing from the teachers' ranks, and seeking employment in more lucrative pursuits, and a more promising field for the display of their peculiar talents?

In this connection the following statistics may, perhaps, be found interesting to those who desire information respecting the progress of education in this Province. In 1872, the number of first-class certificates held by teachers then employed in Ontario was 307; in 1882, this number was reduced to 258, and in 1884, the number was still further reduced to 211, and this, too, notwithstanding the numbers added to the list, year by year, by the Normal Schools.

Again, in the year 1867, the number of male teachers in the Province was 2,849, and of females 2,041—the males predominating by 808. In 1872, the number of males was 2,626, and of females 2,850—showing the female teachers in excess of the males by 224. In 1882, the number of male teachers was 3,362, and the females 3,660; and again, in 1884, the whole number of male teachers employed in the public schools of Ontario was only 2,829, while the number of females employed has risen up to 4,082, or, in other words, the female teachers of the Province now number 1,253 more than the male teachers.

This remarkable change in the relative number of male and female teachers in the Province may be largely, if not entirely, accounted for by two important facts. The inducements held out by the profession are altogether inadequate to retain in the profession the best of the young men who enter it, and hence the annual decrease in the number of first-class certificates, and the still more strongly marked decrease in the number of male teachers. The other fact is one rather to be proud of than regretted. Experience has proved that the character and disposition of the female fit her better for dealing with youthful minds, and especially with the child mind, than do those of the male teacher. The little one turns trustingly and fondly to the female teacher; while, in most cases, it shrinks from contact with the sterner teacher of the other sex. In junior classes, therefore, the progress in learning, and especially in moral training, will be found in almost every case

equal, and in many decidedly superior, to that found under the male teacher. Besides, in very many of the rural schools throughout the country, the female teacher is found competent to manage pretty successfully all the classes from the first to the fourth or fifth, and gives general satisfaction in the district in which she labors. It is evident, therefore, that if the profession of teaching is ever to become what it ought to be—the highest power for good in the country, and recognized and fostered as such—then it must be more liberally and generously supported, and they who labor in it must be held as entitled to a higher position than that which society now awards them.

The public morality of a people largely, and the general intelligence of a people mostly, may be safely ascribed to the teachers of the country, and the numbers are small indeed who will not ascribe the happiness and prosperity of a people principally to the influence of these two factors. As the workingmen of every free state may now be truly said to be, indirectly at least, the law-making power in the state, as they by their voice constitute the body which legislates for all, then assuredly they ought to be both thoughtful and intelligent men, that they may use wisely and honestly, for the interest of the country, the great trust reposed in their hands by the free and liberal constitution under which we live. But the preparation for the right use of the franchise by those who enjoy it is almost entirely the work of the public school teacher, and in this view, as in so many others, the teaching profession is entitled to more consideration at the hands of the people than is usually accorded to it.

As usual, two examinations for promotion were held during the year, with the result of filling all the class rooms in the Central School to their utmost capacity. The students that came up for examination were found, as a general thing, well prepared; but the very success of some of our best teachers at former examinations had left them with nothing in their classes but very young children, and they were thus placed at a disadvantage as compared with some of the pupils from other classes brought into competition with theirs. In the higher divisions, also, the work done evidenced careful and diligent training on the part of the teachers, and, taking into account the shortness of the session ending with December, the result must be held highly satisfactory.

Our system will never be complete until we shall have a Kindergarten class-room in connection with every primary school in the city. Had we only an opportunity of introducing one such class, public opinion would soon compel the general adoption of the system for the mental, moral and physical training of young children, and of preparing them for the successful prosecution of their studies in more advanced classes. Experience shows that the system spreads rapidly wherever introduced, and I have yet to hear of any city or town in the United States or Canada in which it has been abandoned after having had a fair trial.

By the union of London East with the city, three school-houses, thirteen class-rooms, thirteen teachers, and about 840 scholars additional, have been brought under the control of the Board. Of these three school-houses, only one is properly adapted to the work of teaching. The class-rooms are large, lofty, well lighted, and pretty well ventilated, while the halls are spacious and capable of affording ingress and egress to the pupils, without causing crowding or confusion in their passage to and from their respective class-rooms. The schools are graded as well as circumstances would permit, but from the small number of rooms and pupils, each teacher has to handle two or more classes, and this places him at a certain disadvantage as compared with facilities afforded under a more strict and accurate division of labor. We have only two, or at the most three, junior classes in the city schools, in which this evil of over-crowding is not experienced. Attempts are made, it is true, not to cure but to mitigate this evil, by permitting the infant classes to leave school at fifteen minutes to eleven, a.m., and at fifteen minutes to three, p.m., but still this does not afford the elder pupils the opportunity they ought to have to make that progress which is attainable where the classes are only moderately large. However, a very great improvement has taken place in this respect lately, by the efforts of the Board to extend and improve the class-room accommodation in the schools of the city, and there is no doubt this work of extension will continue until ample provision shall have been made to meet the requirements of the juvenile population of the city.

The following extracts from the annual report to the Department may be interesting as showing the number of days certain pupils have attended during the year :—

No of pupils attending school less than 20 days during the year.....	462
“ “ from 21 to 50 days inclusive.....	750
“ “ between 51 and 100.....	1592
“ “ “ 101 and 150.....	941
“ “ “ 151 and 200.....	1330
“ “ “ 201 and whole year.....	24
Total.....	5099

It would be somewhat difficult to arrange a schedule of teachers' salaries for last year, owing to the union of London East with the city and the numerous changes which have taken place. But the following will be found a pretty close approximation to the amount of salaries payable during the current year. Some small additions will have to be made to this on account of the teachers now in training in the two Normal Schools, and of some others who purpose attending one of these institutions during the succeeding session. Probably one or two teachers may have to be added to the staff, and a certain sum must be allowed for the pay of substitutes, but still the schedule I have presented will, I believe, be found correct as respects present arrangements. This list of salaries foots up a pretty large sum, and yet the average salaries in this city are less than the average in all the cities of Ontario taken collectively, both for male and female teachers. In the last published report of the Minister of Education, the average salary of male teachers in cities is given as \$764, and of female teachers \$362, while in our city for the last year the average for males, as already stated, was \$635, and for females \$311.52. The people of London cannot say, therefore, that their teachers are extravagantly paid as compared with other cities in the Province. In this schedule are included the salaries of sixty-three teachers; other expenses incidental to the working of our school system could only be estimated roughly and would be of little value at present.

SCHEDULE OF SALARIES FOR 1886.

1	Teacher at a salary of.....	\$900 00	per annum	\$ 900 00
1	“	800 00	“	800 00
1	“	750 00	“	750 00
1	“	650 00	“	650 00
7	“	600 00	“	4,200 00
1	“	255 00	“	255 00
1	“	500 00	“	500 00
2	“	450 00	“	900 00
7	“	400 00	“	2,800 00
3	“	375 00	“	1,125 00
1	“	425 00	“	425 00
5	“	350 00	“	1,750 00
11	“	300 00	“	3,300 00
5	“	275 00	“	1,375 00
16	“	250 00	“	4,000 00

The staff of teachers is entitled to the respect of the Board and the gratitude of the community for faithful and efficient services during the year. The very few complaints that have reached me, the orderly character of the schools, and the general progress of the scholars, afford sufficient proof that the work of the teachers has been skilfully faithfully and energetically performed.

CITY OF TORONTO.

*Extract from Report of James L. Hughes, Esq., Inspector.**Attendance.*

The total number of pupils registered during the year was 18,214. Last year it was 17,579.

The average daily attendance was 12,484. Last year it was 11,758.

667	pupils attended school less than.....	20 days
1,769	" " between.....	20 and 50 "
3,417	" " ".....	51 " 100 "
3,168	" " ".....	101 " 150 "
9,193	" " ".....	151 " 200 "

The number who attended school for over 100 days is 12,361, or more than 68 per cent. of the total registered number.

The comparatively large number who attended school for less than 100 days can be easily accounted for, when it is remembered that most of the scholars who leave school do so at the close of the first term. The report would appear more favorable if the year closed in July instead of December. The attendance was lessened by contagious diseases during the latter part of the year.

Attendance in the Various Classes.

The registered number in attendance during the year in the different grades was as follows :

First Book.....	7,710
Second ".....	4,312
Third ".....	3,501
Fourth ".....	1,941
Fifth ".....	750

I am glad to have to report that the number of pupils in the Fourth Book classes has increased during the year very considerably.

Lateness.

The punctuality of the pupils is of a most satisfactory character. The formation of the habit of punctuality is a most important part of the training of children, and our teachers give constant attention to the prompt attendance of their pupils.

Date.	Average Attendance.
1875.....	6,386
1876.....	5,976
1877.....	6,860
1878.....	7,467
1879.....	8,144
1880.....	8,215
1881.....	8,409
1882.....	8,845
1883.....	10,111
1884.....	11,758
1885.....	12,484

Certificates of Honor.

Certificates of Honor are awarded at the Christmas Vacation to such pupils only as have not been once absent or late, and whose conduct has been uniformly good; unless the absence or lateness shall have been occasioned by sickness of not more than three weeks continuance, to be certified in writing by the pupils' parents or guardians.

These certificates are of two grades, and named respectively First Honor Certificates, and Second Honor Certificates.

The First Honor Certificates are awarded to such pupils as have fulfilled the above-named conditions for two consecutive sessions.

The Second Honor Certificates are awarded to such pupils as have conformed to the said rules for one session during the year.

The following statement shows the number of Certificates given at the close of 1885. Thirty-two schools—First Honor, 2,067; Second Honor, 3,392; total, 5,459.

The Kindergarten.

The Kindergarten classes in Victoria and Niagara Street Schools were well attended during the year, and the effects of the training were satisfactory in the physical, mental, industrial, social and moral development of the children in attendance. The average attendance was, Victoria Street, 76; Niagara Street, 48. The training class consisted of fifteen young ladies in addition to the four paid Kindergartners in the employ of the Board.

It was decided in November to open a Kindergarten class in connection with the College Avenue School, for the children of the poorer class in the neighborhood. No class of children will receive more benefit from the Kindergarten training than the little ones whose mothers are occupied away from home in earning money, and who necessarily have to neglect their children.

Music.

Some improvement is being made in teaching music. The most encouraging feature in connection with the subject is the attitude of the teachers towards it. They are rapidly becoming interested in the teaching of music, and believe that they should do the work chiefly themselves. The annual concerts in connection with the closing exercises of the schools, in June, were most successful.

Drill and Physical Exercises.

The Annual Review and Competitions in Drill and Calisthenic Exercises took place in June. The School Games were held on the same day. A grand procession of about 8,000 children marched through the principal streets before the competitions began, and the appearance, bearing, carriage, and precision of step of the girls, as well as the boys, won the admiration of all spectators. There can be no doubt of the wisdom of directing special attention to the definite physical training of the pupils in our schools. The health of the children is a matter of vital importance, and even the moral characters of the children are directly affected by a system of physical drill which gives additional bodily vigor, and at the same time leads them to make the body act with proper precision in obedience to a definite exercise of will power. Action not only aids in expressing thought, it re-acts on thought to define it. The wide spreading of the arms in expressing the sentiment of freedom deepens the feeling and thought of freedom in the mind. To make a boy change his shuffling step and bent form to a definite use of his limbs and an erect, easy, active figure, will do a good deal towards removing his carelessness and general indefiniteness of character.

The Boys' Battalion was reviewed by Col. Denison, D. A. G., and the several companies executed the various movements in a manner which earned for them the earnest praises of the Inspecting Officer and the Judges.

The movements of the Girls' Classes were greatly admired.

The Boys' Battalion had the honor of taking part in the reception of the Toronto Volunteers on their return from the North-West after the suppression of the rebellion, and also on the return of C Company under command of Col. Otter. On both occasions they reflected credit on the careful training of Capt. Thompson—and Sergt-Major Moulton, who drilled them during the absence of Capt. Thompson with his battalion in the North-West. General Middleton, during a brief visit to the city in September, inspected the boys of Ryerson, Wellesley, and Dufferin Schools, and expressed his surprise at the steadiness and proficiency of the companies. He highly approved of the teaching of drill in schools, and stated that he would gladly aid in securing the establishment of a Public School Battalion of Cadets by the Dominion Government.

Night Schools.

The total number registered during the term in each school was as follows :

SCHOOLS.	MALES.	FEMALES.	TOTAL.
Parliament Street.....	163	65	228
Elizabeth ".....	134	32	166
Niagara ".....	94	41	135
Bathurst ".....	159	33	192
Jesse Ketchum.....	94	20	114
Mabel Street.....	19	..	19
Bolton ".....	54	25	79
Massey Manufacturing Company.....	41	..	41
Total.....	758	216	974

The average attendance for the entire term was :

SCHOOLS.	MALES.	FEMALES.	TOTAL.
Parliament Street.....	82	45	127
Elizabeth ".....	63	20	83
Niagara ".....	54	21	75
Bathurst ".....	78	22	100
Jesse Ketchum.....	43	12	55
Mabel Street.....	7	..	7
Bolton ".....	27	15	42
Massey Manufacturing Company.....	18	..	18
Total.....	372	135	507

Teachers.

There were 283 teachers in the employ of the Board at the close of the year, exclusive of the special teachers in music and drawing.

There are 27 male and 206 female teachers employed.

School Accommodation.

Two new buildings were erected during the year, one containing twelve rooms, on Bolton Avenue, and one containing four rooms, on Morse Street. The Bolton Avenue school cost \$17,500, and that on Morse street cost \$9,500. The accommodation is still far below that required by law.

Progress of the Public Schools.

The increase in the attendance at our schools has been very rapid.

In 1865 the average registered No. was	3,248,	the daily attendance,	2,251
" 1875	"	"	6,447
" 1885	"	"	13,905
			5,386
			12,318

The attendance has thus been considerably more than doubled during the past ten years.

2. ROMAN CATHOLIC SEPARATE SCHOOL INSPECTION.

Report of James F. White, Esq., Inspector.—Eastern Division.

SIR,—I have the honor to lay before you a report on the R. C. Separate Schools in Eastern Ontario visited by me in 1886.

This year has witnessed gratifying progress in connection with these schools in nearly all directions. There are in this district 115 schools having 285 teachers, a gain of five schools and ten teachers during the present year.

There has been considerable improvement in the accommodation; some of the old schools have been enlarged or repaired, and several fine buildings have been erected. Of the new school houses in towns, the first place is taken by those in Renfrew and Westport, which are large, substantial buildings well adapted for school purposes. But the improvement in rural sections has been relatively greater than in towns, and, in general, the new buildings are, as to style and comfort, far superior to the former country school-houses. Two of those in use this year are models of what such schools might be, viz., those at 10 Otonabee and 7 Nepean.

There is yet need for better accommodation in all the cities, though there is a wide difference as to the needs of the several places; Kingston is the best situated in this respect, and Ottawa the worst. However, it is highly probable that a marked improvement will be made in the buildings of the latter place during 1887. But even where poor accommodations have been suffered to remain unchanged year after year the blame does not in all cases rest wholly on the trustees. The required changes in the accommodation would generally necessitate a considerable increase in taxation, and this increase would, the trustees say, cause many ratepayers to withdraw their support from the school; and as this can easily be done, the attempted strict enforcement of the regulations in this regard would sometimes result in the breaking up of a school. But usually the trustees and supporters have made praiseworthy efforts to provide suitable buildings even at a considerable sacrifice.

In general there is a very respectable supply of furniture and the most necessary appliances for teaching; usually these are of the modern approved kind, but there yet remain in a few of the town and city schools the long unwieldy desks, and benches without backs. Comparatively few schools are supplied with standard dictionaries, gazetteers, encyclopædias, and other works of reference. There are very fair libraries in connection with some of the larger schools in the cities and chief towns. In Peterboro' there is a large, comfortable, well-furnished room devoted to this purpose, and papers and some magazines are furnished in addition to the books. Much good has resulted from these institutions, but their usefulness would be greatly increased if a substantial addition of good works were made every year, and care were taken in choosing such literature as is best suited to the needs of school children, not omitting to provide interesting and instructive reading for the younger classes. By a little extra effort fair libraries could be secured for many more schools; the expenditure of a comparatively small amount each year would supply a fresh stock of books, thus keeping up interest in the library. The benefits that could be derived from such educational helps it would be hard to over-estimate.

Usually the grading and classification have been made with care ; in some cases, however, reading has been apparently the sole basis for making promotions, and then pupils have been advanced into classes for which their acquirements in other subjects do not qualify them. Chiefly on account of the great diversity in the text books used it has not been possible for me to have promotions made by means of written examinations uniform for all the schools. But in the three larger places in this district—Toronto, Ottawa and Kingston—there are local inspectors, and promotions are made under their charge by means of written examinations.

In some of the girls' schools the programme of studies comprises the subjects for teachers' non-professional examinations. Year after year this work has been carried on with most gratifying success, and much praise is due to the teachers in such schools, especially when it is remembered that the task of preparing the pupils in the several subjects of the examination falls usually upon a single teacher. The schools in Lindsay, Toronto, and Ottawa, have been the most successful in this undertaking. It is worthy of remark that while this work is successfully done in several girls' schools there is not now one school exclusively for boys where it is attempted. Judging from this fact one would conclude that the boys' schools are not fully equal to the girls', and an examination of the classes in some places bears out this conclusion. However, it should be remembered that, when able to pass the Entrance Examination, the boys have usually attended the High Schools. But the fact yet remains that at times the girls' classes are certainly more efficient than the boys' in the same place. Sometimes this is due to a larger staff, or superior grading ; but, from whatever cause it arises, the matter deserves the earnest attention of school authorities, for it does not seem right that boys, the future bread-winners, should not have opportunities, at least equal to those afforded girls, of obtaining a liberal education.

The statistics of the Separate Schools for 1885, published elsewhere in your report, show very encouraging progress in several respects. There has been some advance in the salaries, both of male and of female teachers ; there is a decided increase in the receipts and expenditures, the gain in the former arising principally from " amounts subscribed by supporters and from other sources " as distinct from either the Legislative grant or from the ordinary taxation on supporters ; the increase in expenditure has been caused chiefly by the sums spent on buildings. There is an increase, too, in the total number of pupils enrolled and in the average attendance, the latter having risen from 53 per cent. to 55 per cent. within a year. Though yet not wholly satisfactory it is very encouraging to notice the steady rise in this respect ; the average attendance in the Public Schools for the same year was 48 per cent. No attempt has, to my knowledge, been made to enforce the provisions of compulsory education. To the unwearied exertions of the teachers and the clergy, is due the increased regularity of attendance.

French Schools.—In some of the counties along the Ottawa River, but chiefly in the counties of Prescott and Russell, there are several Separate Schools in which French children form either the majority or the whole of those in attendance. In general, both the English and French languages are taught in all such schools ; sometimes the principal part of the studies is in English, and the subjects taught in French are reading, grammar, composition, and religious instruction—this, even when the great bulk of the pupils speak French as their mother tongue. In other cases the two languages receive about equal attention, and sometimes the greater part of the teaching and instruction is given in French. However, of the whole number of teachers in these French schools—thirty—there were but two or three who were teaching exclusively in French ; nor are these, I am told, schools in which English has never been taught, but the scarcity of teachers capable of giving instruction in both languages led to the engaging of those who knew only French, as that is the language of all the pupils in these particular schools.

As to these teachers' qualifications, many of them have diplomas obtained from Boards of Examiners in the Province of Quebec, several have certificates granted by the local Board in Prescott and Russell, and others have only temporary certificates. There are several difficulties to be overcome before there will be properly qualified teachers for such sections. The first is the lack of schools at which the French candidates can prepare for an examination to be conducted to a considerable extent in their own language. Many of

those now teaching have prepared themselves either by private study or by attendance at some of the higher schools in Quebec Province. Then the amount of salary usually paid is too small to require teachers to make an expensive preparation for the profession or to tempt them to remain long in it; in Prescott and Russell the average salary for a female teacher in the Separate Schools was, in 1885, but \$144 a year. Not alone in literary culture is an improvement needed in regard to these teachers, but in special preparation for their profession. Much good was expected to result from the training to be given in the French Model School, for the opening of which preparations had been made this year, but which will, I hope, be opened at latest in September, 1887. In this school instruction in the English subjects should be given as well as in the art of teaching; for only when the teachers have a proper knowledge of English can we hope for it to be taught with satisfactory results. Now while the general standing of these schools is not high there has been a certain advance in some of them since my first visit in 1882, and they are in about the same state of efficiency as the French Public Schools in these districts.

On the whole, there has been, during this year, a decided advance in the work of the Separate Schools.

TORONTO, December, 1886.

Report of Cornelius Donovan, Esq., M.A.—Western Division.

SIR,—I have the honor of submitting the following general remarks on the schools visited by me during the year 1886:—

STATISTICAL.

Distance travelled.....	(about) 4000 miles.
Classes visited.....	268
Number of pupils registered.....	11587
Number of pupils in attendance.....	8649
Number of teachers.....	243
Number of school buildings.....	118
Number of classes visited twice.....	25

As I visited the Toronto schools this year at your direction, in order to equalize the number of teachers in the Province between the two Inspectors, an attendance of 2,085 pupils and fifty eight teachers (belonging to Toronto), must be deducted to show the statistics for what has hitherto been known as the Western Division. This being done, and the figures compared with those of last year's report, it will be found that there is an

Increase in attendance of.....	300 pupils.
Increase in number of teachers.....	5
Increase in number of buildings.....	4

Extent and Character of the Accommodations.

About half the number of buildings are of brick or stone, and the remainder (except eight) are good substantial frame schools. I am happy to be able to report that their character is still improving. In Parkhill there is now a handsome brick school; Brechin has added a brick wing which has doubled its accommodation; No. 1 Hibbert has a new frame school, while Toronto has put up a substantial brick building on Hope street, which is calculated to give much needed relief to St. Mary's school. In some places, especially in cities and towns where the populations increase rapidly, overcrowding is still to be met with; but on the whole the accommodations are generally adequate and comfortable. In the comparatively few cases where defects exist, either in the buildings, equipments or grounds, attention has been directed to these defects, in the detailed reports sent to the Department during the year. Judging by the past, I have reason to believe that all improvements then suggested will be duly attended to.

Teachers and Pupils.

The continued increase in the attendance of pupils and in the number of teachers is a matter of gratification. But the increase of the latter does not always keep pace with that of the former; and in consequence, some teachers have classes altogether too large. All school authorities should be alive to the dangers of this state of affairs; because sooner or later, its evil effects are seen in the prematurely broken health of the teacher or in the backwardness of the pupils.

All the subjects of the public school programme are taught throughout this division; while some schools have fifth classes in which High School work is done to a considerable extent. The literary standing of the schools (with a few exceptions) is highly creditable, and, on the whole, they are making satisfactory progress. Besides the rather lengthy oral examination to which I subjected them at the time of my regular visit, I also tested their powers at written work by sending out, in June, examination papers in the principal subjects for classes III. and IV. The results, in general, were most creditable to both teachers and pupils.

The practice, prevailing in cities and towns, of withdrawing boys from school at an early age and putting them at work, is much to be deprecated. It may be a matter of necessity in some cases, but as a rule this need not be done. These children, often bordering on infancy, enter factories and other workshops, where they soon become physically and mentally dwarfed, and learn many things of which they ought to be utterly ignorant.

It gives me pleasure to again bear witness to the efficiency and zeal of the teachers as a body—the number of those whom I could characterize as being incompetent being few indeed. All who could do so, attended the county conventions and teachers' institutes; for those who were not in a position to attend these I endeavored to provide a substitute, by assembling as many as possible at convenient places and giving lectures bearing on school work. In these and in other cases, I readily perceived that the teachers in general were fully alive to the progressive tendency of the age in the matter of education.

On a general view of their status, I think, Sir, that you have reason to feel satisfied with the Separate Schools.

HAMILTON, December, 1886.

3. INDIAN SCHOOL INSPECTION.

Extracts from Reports of School Inspectors on Indian Schools.

JAMES F. WHITE, ESQ., INSPECTOR ROMAN CATHOLIC INDIAN SCHOOLS.

Wikwemikong (Boys).—This school is yet held in the same temporary quarters, to which it was removed on the burning of the school building proper. On my visit in June, thirty-five pupils were registered, with twenty-seven present, nearly all from the village. By far the greater number read in the First book, though a few were in the second and fourth classes. The teachers are Mr. Thos. J. Scanlan, ecclesiastic, and Mr. S. Dufresne. The former, who is principal, is full of energy and has improved the order and infused new life into the school. The regular industrial training has not been carried on to any great extent since the burning of the school, though some of the boys are learning shoemaking, blacksmithing, etc., under charge of former pupils of the institution. The state of instruction is, in general, satisfactory, though arithmetic and spoken English may yet be improved.

On my second visit I found the registered and the actual attendance thirty-five and thirty respectively. The teachers are the same and the accommodations remain unchanged, though the school house is expected to be ready for occupation before winter. An improvement was noticeable in several subjects, and the general work of the school was proceeding satisfactorily.

Wikwemikong (Girls).—This school is now held in the new building, which is large and comfortable, with high airy class-rooms. The school continues under charge of the Misses Nordend; Miss Miller is the superioress, and Miss Kintz the principal teacher; the assistant is a native, and she renders efficient help, especially in interpreting for the younger children. On my first visit there were forty-three registered and thirty present—nearly all in the First book. Of these, fourteen were boarders in the Institution, and the others from the village. School has been held for three hours each day, and to house work about an equal time is devoted. The pupils have the care of the school building and it was neat and clean; but no work in sewing, knitting, etc., was shown. The state of instruction is only fairly satisfactory; there has been too much learning by heart and not enough thorough teaching to make the children understand the meaning of what they learn and express it properly in English. The supply of maps, books, etc., was but fair.

On my September trip, I found Miss Lyman in charge as head teacher; she has had considerable experience as teacher, and seems earnest and energetic. On the register were forty-nine pupils, of whom sixteen are boarders; twenty-nine were present—none beyond the First reader. There are good blackboards around three sides of the room; some good maps, and fairly comfortable seats and desks; supplies of books and other requisites have been asked for. An improvement is shown in several subjects, notably in reading, dictation, and writing on slates. The school now promises to do good work, though considerable drill is needed in arithmetic and practical English.

Wikwemikongsing.—This school is in charge of Miss Bernard, a native, educated at Killarney. She has been here since October, 1885; her knowledge of English is not very extensive, and her capabilities for imparting instruction not very great. The house serves in part for a dwelling, and is neither clean nor comfortable. The furniture is fairly good; a large blackboard is needed. On the register were sixteen pupils, five of whom were present; all but two of the total number are in the First book. For several reasons the attendance has been very irregular, the indifference of the teacher to her work has been one great reason. The pupils know but very little about English, partly because the teacher has given all explanations and commands in the Indian tongue. The general standing of the school is very low, with no prospects for improvement until a better teacher has been secured.

On my second visit I found the house undergoing repairs, and in consequence there was no school that day. Not a great deal should be spent on the present building as it is not central, the greater number of the children coming from the settlement on the hill, fully a mile distant.

Buzwaks.—School is now held in the new building, which is of good size, neat and comfortable. Miss Agatha Gabow still continues in charge. There were nineteen pupils registered and seventeen present. The teacher is earnest and energetic, and merits much praise for the way in which she has conducted the school. The pupils have made very fair progress in the several branches taught, and understand English quite well. In addition, they have been taught to be neat in regard to their persons and to the school house.

On my visit in September, I found matters progressing very satisfactorily, though the attendance was not so large. The reading was done quite well, as was the dictation; writing on slates and copies was very good. In arithmetic the results were very fair; object and language lessons are taught, and the pupils sing. On the whole the work of this school has been successful.

South Bay.—In June I found that the teacher had been taken sick and had gone home to Cape Oroker. Her place has been taken for the time by a male teacher, only fairly qualified. The school here cannot be regarded as a great success. There are about twenty-three children in the settlement who might attend, but school has been kept only part of the time each year, and the attendance at best has been very irregular.

When I went here in September, the school was not open, as most of the Indians with their families were absent from the settlement. Unless school is kept more regularly no progress can be expected.

West Bay.—Mr. Jonas L. Odjig was in charge of this school on my visit in June. He is a native, educated at Wikwemikong, and teaching since September, 1885. He has but,

a limited knowledge of English, and gives most of his explanations in his native tongue. There were thirty-one children on the register and sixteen present; of the total number twelve are in Book II, and three in Book III. The building is large and comfortable, and a part of it serves as the teacher's residence. The supply of furniture and necessary appliances is quite respectable. On the day of my visit the larger and more advanced pupils were away; those present acquitted themselves only fairly well, showing the lack of careful teaching and proper drill. Indeed not much can be expected from this school until more regularity shall be secured in the attendance of teacher and pupils.

At the time of my visit in September, Mr. Odjig, though nominally the teacher, had not returned to his duties in the village.

Serpent River.—At the date of my inspection in June, the teacher—Mrs. Sophia Pelletier—was absent for a few days and her place was filled by her husband, a French half-breed. His knowledge of spoken English is quite good, but he lacks all experience as teacher. The building is small, serving as a school and the teacher's residence; it is not kept so clean as it might be. The furniture is respectable, though rather limited; yet, as the attendance is very irregular, it serves well enough. The state of instruction is not so satisfactory as could be desired; but until greater regularity in the attendance has been secured not much progress can be looked for.

In September, the teacher formerly at Mississaga—Mrs. Mary Cada—was in charge. No material change has taken place either in the attendance or the acquirements of the pupils. This is one of the places where the prospects are not very bright.

Mississaga.—Mrs. Mary Cada, white, educated at Chatham, was in charge in June. She has had an experience of seven years in teaching, two of which have been passed here. The attendance continues to be very irregular; the school lacks neatness in a marked degree, and but little progress has been made in school work.

In September, Miss Grace M. Patton, was found in charge. She is a white, has received a fair education and holds a permit from the former Inspector. She is earnest and energetic, with very fair teaching ability, much superior to the ordinary teacher in these schools. Several white children attend here, with the consent of the agent; in my opinion the Indian children will profit materially from their intercourse with them, and they receive a fair proportion of the teacher's attention in school. The total number of Indian children was twenty-one, of whom five are in Book II and one in Book III, the others in Book I; six only were present. These acquitted themselves with a fair degree of credit when the irregularity of attendance is considered. The school shows a decided advance since my former visit.

Sheshegewaning.—Though the Indians here had promised to engage a teacher and have their school open early in the year, I found in June that nothing had been done, as they were disappointed of the first teacher whom they thought of securing. The Indians hereabouts appear very careless concerning school matters, which is to be regretted as their children are bright and clever, above the ordinary native children on the other parts of the island.

In September they told me that they had engaged a young man who would soon come to open the school.

Garden River.—This school was visited only once this year, in September. Rev. Thos. Ouellet, S. J., has the school under his charge, while Miss McMahon does most of the teaching. The school-house is neat and comfortable, and well supplied with the necessary furniture and appliances for teaching. The registered number is fifty, of whom five are in Book II. and five in Book III.; eighteen were present—a smaller number than usual, as the attendance here is more regular than in the ordinary Indian school. The usual work of instruction is proceeding with fair satisfaction; the pupils need more practice in expressing themselves in spoken and written English. In arithmetic they are slow; in spelling and writing but fair. They are neat in appearance and sing with considerable taste. Fr. Ouellett takes much interest in the school and will no doubt make it a success.

Sagamok.—In this settlement I found that they were only preparing to build their school house; they had most of the timber cut and in place in June, and the agent was getting the necessary lumber.

Though on my first visit the building was expected to be ready for the beginning of the second term, I found in September that the progress had not been very great, and that it would be some time before all would be ready to begin school.

White Fish Lake.—The teacher here is Miss Hourigan, a white, who has a fair education and whose work has been quite successful. At the time of my visit in September, she had not yet returned. The school building was undergoing repairs to make it comfortable for the winter.

Red Rock.—Mr. J. McKay is still in charge of this school; no great progress is being made, however. He has yet to look after the two settlements and the attendance is very irregular, even for an Indian school. When there are enough children in each settlement to require two separate teachers, then progress may be looked for; but at present one teacher, no matter how efficient, can make but little improvement.

Fort William (Girls).—The schools here were visited but once this year. The girls are under charge of the Sisters of St. Joseph, Sr. Ursula being the principal teacher. The building is neat, large and comfortable; the school-room is very well suited for the purpose. The supply of furniture and equipment is quite complete; some books, etc., were needed and they have been ordered. There were registered twenty-nine pupils with twenty-two present; these are classified up to the Third book inclusive. The pupils are many of them boarders, who learn something of housekeeping, etc., in addition to their school studies; they were very neat in appearance and polite in manner. Since my previous visit a considerable improvement is noticeable in all the subjects taken up. The teacher is capable and energetic and I expect to see this school reach quite a high standing.

(Boys).—This school continues under the charge of Mr. Thos. Stackum. The attendance is decreasing somewhat, as but eleven are now on the register; all are in Book I. They show some improvement in reading and in writing, but they do not remain long at school. The building is not so comfortable as it should be; better seats and desks should be provided, also a desk for the teacher. There is a fair supply of books, some of which are of old style no longer used in the public schools.

Cornwall Island.—On visiting this school in October, I found in charge Miss E. Foy, the same teacher who was here last year. She was educated in Hogsburgh, N.Y., and holds a temporary certificate from Inspector McNaughton. The building is not very comfortable as the plaster has fallen off in several places; it needs repair to make it suitable for occupation in winter. The school furniture and appliances are quite respectable; there is also a very fair supply of books, etc. The common complaint is made here of the irregularity of the attendance and of the indifference about coming on time. On the register are fourteen pupils; of these but five were present. In summer the attendance is much larger, twenty-five being registered for that time. The teacher is energetic and has fair aptitude for teaching, but yet the results are not very gratifying nor can much be hoped for until the children can be got to attend regularly.

Mattawa.—The Indian children here are in attendance at the Separate School, and have better opportunities than in the majority of their settlements. By their intercourse with the white children they have profited a great deal, in regard to learning English and in other ways.

Golden Lake.—This school I was unable to visit through want of time.

General Remarks.—In several of the schools I found, during my visits this year, a considerable improvement over their standing of last year; in some few, no improvement was noticeable. The great obstacle in the day schools is the irregularity of the pupils' attendance. In my last report I suggested that the payment of the annuity for each child should depend upon his attendance at school during the previous year for four or five months. I still think that a plan of this kind or the giving of an *extra grant* for regularity of attendance would lessen this evil to a considerable extent. Something, too, might be done by making the schools more attractive than many of them now are; not alone by making the buildings neater and more comfortable, but by having less dull monotony in the exercises and by introducing singing, recitations, etc., such things as are attractive in our Public Schools. Then, in the larger schools at least, there might be

some kind of school exhibitions and examinations three or four times a year. At these the parents might be induced to assist, by having the exercises enlivened by singing, recitations, etc., and prizes might be given for regularity of attendance and improvement in work.

To remove the indifference to their work shown by some teachers, I would suggest that the payment of their salaries depend upon the regularity with which they teach during the term; instead of being paid by the year the salary might be made so much a month, in which case some teachers would not be so frequently absent from their schools, sometimes for a considerable period. We cannot expect that children will acquire habits of regular attendance when teachers will take a holiday of a week or two on a flimsy pretense or without any excuse whatever. The teachers of all Indian schools should be made to pass some kind of qualifying examination; a low standard would of necessity have to be adopted at first, but this could gradually be raised. Arrangements might be made by which the Institutions at Wikwemikong and Sault Ste. Marie should prepare pupils for this examination and give them some instruction in regard to teaching. The record of the Mohawk Institute shows that this work could be done successfully.

There has been a great variety in the books used in these schools; of readers I have found no fewer than six different series in the schools visited by me; several of these are old kinds long since discarded in the Public Schools. To prevent this using of old or inferior kinds I have, on visiting the schools, found out the supplies needed and have ordered them from the Department. As it is often difficult, especially in winter, to send these supplies to several of the schools, I would recommend that a stock of the most necessary articles, such as books, slates, pens, ink, etc., be sent to the agents who would furnish them to the different schools when the list had been certified to by the Inspector. This would, I believe, prevent long, annoying delays in getting these requisites for school work, and would save considerable expense in the shipping.

A few of the schools were closed for some time during the cold weather because their supply of wood had given out, and no provision had been made for a new supply. As the school work is interrupted only too often, this cause of interruption might be prevented by having the Indians furnish the wood and paying them for it.

M. J. KELLY, Esq., M.A., INSPECTOR, COUNTY OF BRANT.

Indian Reserve in the Township of Tuscarora.

These schools, twelve in number, were visited and inspected in the month of June.

1. *The Board School*, at the Council House, Ashwekan; Miss Floretta Maracle, teacher, at a salary of \$275 per annum. No notices had been sent to the teachers of the intended visits, as was done on previous occasions, so that the attendance, the appearance of the pupils and the results of the examinations may be taken as indicative of the everyday condition of the schools. The additional equipment of this school, since last visit, consists of a slate, blackboard and six new Windsor chairs. More maple trees have been planted on the play-ground.

The fourth class—three pupils, were examined in reading, spelling, English grammar, geography, arithmetic and writing; work fairly done, but scarcely up to that of last examination. The third class—five pupils—were examined in the same subjects with better relative results. The second class—nine pupils—read, spell, write and do work in simple addition and subtraction fairly well. The first class—twelve pupils—know the tablets pretty well and the Arabic numerals; 29 pupils present; order and attention, good; children clean in their persons and dressed as well as white children.

2. *Thomas School, Band School*.—Mr. John Miller, teacher; salary, \$250. A small

globe had been sent to this school, but was broken in transition. A hemispherical map of the world is needed, also new desks, as the children cannot write on those they have. There is only one closet, and no trees have yet been planted in the grounds.

There were 26 pupils present in four classes. The fourth class (six pupils) were examined in reading, spelling, writing (on slates), grammar and geography. The problems in arithmetic (including vulgar fractions and decimals) which I had written on the blackboard, the majority of the class found too difficult. In the other subjects the work was well done. The same may be said generally of the other classes. This school has improved since the last examination.

3. *Red Line School*.—Under O. M. Conference; Miss Cross, teacher; salary, \$250. The site of this school has been moved. It is now held in a new frame house near the Methodist Church and parsonage, on the Grand River. The school-room is painted blue and is furnished with desks and seats similar to those in the Board schools. New maps of Canada and Ontario have been supplied. Since the removal the attendance has been about twenty as the average. Thirteen present the day of my visit (9th June) in three classes, but six of these (the children) were white.

In the third class (two pupils, both white) the work was fairly done. The second class (four in attendance), the reading, spelling and arithmetic, satisfactory; the geography indifferent. The first class did fairly good work for that grade. The order, good, and the school doing much better than formerly; Gage's readers used. A return is made quarterly to the Rev. Dr. Sutherland, who transmits it to the Indian Department.

4. *No. 8 Board School*, near Kanyenga church and the Sour Springs. Miss Maggie Davis, teacher. Present, Rev. Mr. Carswell and Mrs. Carswell, Rev. R. Ashton and a few others. School-room clean and cheerful. Additional equipment since last visit, new platform for teacher's desk, platform for stove, new slate blackboard, half a dozen new chairs for visitors, outhouses satisfactory, a pretty pine grove surrounds the school house. Nineteen pupils present, in four classes. In the fourth class two, who do well in reading, spelling, and arithmetic, and fairly in grammar and geography. The principal fault in the reading was too great rapidity of utterance. Out of eight problems in arithmetic submitted, five were correctly solved. In the third class (three present) the reading, spelling and arithmetic, all well done. The second class (six present) and the first (eight present) read and spell fairly well. School better than when last examined.

5. *No. 6 Board School*.—The school is held in the church of Rev. Mr. Anthony's (Indian) Mission, situated in a nice grove on the Tuscarora side of the boundary between Brant and Haldimand, a short way from Caledonia. The teacher is Benjamin Carpenter (Indian), a man advanced in years and without a certificate, who taught the Indian school on the river below Newport many years ago. The church, a graceful structure, with neat spire, is painted white externally. Inside, the ceiling is white, the side walls and desks blue. Equipments, a good clock, blackboard, small globe, lamps, maps of Canada, United States, the World, Holy Land, large natural history chart and tablets of same. Twenty children present, in four classes. The parents are of the Cayuga, Onondaga and Mohawk tribes, most of the first two, pagans. After the examination we drove by the Long House of the Cayugas where they were celebrating the bean dance; not far from this is the Long House of the Onondagas. Nineteen pupils present in four classes. The reading in all the classes monotonous and too low. Spelling inferior, arithmetic inferior, children know nothing of grammar or geography. The pagan Indians are generally averse to the learning of the schools.

6. *No. 10 Board School*.—John Lichers (Indian), teacher; passed the entrance examination one and a-half years ago; subsequently attended the Brantford Collegiate Institute for one year and left on the 2nd June. Attendance usually from 34 to 43. In this school the reading and spelling generally good; arithmetic also satisfactory; grammar and geography, fair; order, good. Fine brick school-house, well equipped. Good grounds and outhouses.

7. *No. 5 Board School*.—Mrs. Etobico, teacher; fine frame house in nice grove; floor, desks and walls very clean; twenty pupils present, in four classes. Reading and spelling of the fourth class, good; geography and grammar, fair. The same may be said

of the third class, with the exception of the arithmetic, which is not quite so good as that in the fourth class. The first and second classes do fair work. Equipment of school-room is satisfactory. The grounds, which are high and dry, are not yet enclosed. This school was visited on the 15th of June.

8. *Stone Ridge School-House*.—Under C. M. Conference; Miss Elizabeth Hyndman (white), teacher; no certificate; house old; grounds not inclosed; no outhouses; the walls of school-room clean; floor still needs repairing; no globe, blackboard or tablets; Gage's books used; new desks and seats for pupils; new teacher's desk and stove since last visit; maps of the world and Canada; twelve pupils present, in three classes; spelling and reading, generally good; arithmetic, grammar and geography, fair. The senior pupils are just beginning to write. A new school house and more grounds needed.

9. *No. 8 Board School*.—Miss Susan Davis, teacher; salary, \$275 per annum. Since last visit, the additional equipment here has been two new slate blackboards, four new desks, new teacher's desk and platform, new press. Trees have been planted in the playground. Order, good; children well dressed and clean; thirty present, in five classes. In the fifth class the reading was fair, the spelling good. In arithmetic the pupils can do problems in reduction, compound rules and fractions readily and with neatness, can analyze and parse simple sentences in grammar accurately, and know geography fairly well. The fourth and third classes compare very well with the fifth. The first and second classes do fair work. On the whole a good school, well managed. The visit was made here on the 21st of June.

10. *No. 7 Board School*.—Miss Elizabeth Johnson, teacher; additional equipment new (teacher's) desk and platform; new slate blackboard, additional trees planted on play-grounds. This and all the other schools should have the new tablets; walls and floor clean; order, good. Twenty-four pupils present and 64 names on the roll.

Four classes.—In the fourth class, the reading, spelling, arithmetic, grammar and geography, were only fair. In the third class, the reading and spelling were better, but the grammar, etc., similar. In the first and second classes, only fair work done. Col. Gilkison accompanied me, to the last two schools.

11. *No. 9 Board School*.—Claybren Russell, teacher; 35 on the roll, 19 present; a number having gone to a pic-nic. The winter attendance of the school is 25 to 30; summer do 15 to 25. Col. Gilkison, local Superintendent of Indian Affairs, accompanied me, and as the distance was far and the roads bad, we were forced to take a team and carriage; 24 additional trees had been planted in the playground here; a new board walk made from the stile to the front door, and a new slate blackboard supplied in the school-room, the walls of which had been plastered anew. There are five classes in the school, in my opinion at least one too many. English is generally spoken in the neighborhood, and white blood predominates in the Indians hereabouts. As a result the children have not only fair complexions, but think and speak almost wholly in English. There are many bright ones among them. The reading and spelling very good, though with care and due attention they might be improved; arithmetic fairly taught and fair proficiency shown therein. The knowledge of English grammar evinced only middling; geography, fair; order good, as indeed it is in all these Indian schools.

12. *New Credit School*.—A Band School. This school chanced to be closed, the children being absent at a Sunday School pic-nic. The trustees, the principal of whom I met expressed regret at this, as they desired to witness the examination of the children. However, there was no help for it. The same teacher is still retained in this school. A new school-house is badly needed, and I hope to see one erected soon. These Indians are an Ojibewa tribe and have, therefore, no consanguineous relation to the Six Nations; they occupy a very fertile and picturesque portion of the reserve. This they got as a gift from the Iroquois. Not long ago they voted a considerable sum of money for the monument now in course of erection to the memory of Thyendinaga. This is to stand in Victoria Square in the City of Brantford, and will be completed before the end of next October. I have nothing further to say of the Tuscarora schools, except I think they might with advantage be placed on the same footing as the Public schools of the County. They have all been supplied by me with the new Public school registers.

JOHN BREBNER, ESQ., INSPECTOR, WEST LAMBTON.

Indian Schools on Walpole Island and Sarnia Reserve.

WALPOLE ISLAND.

Visited No. 1. Walpole Island, June 19th, and found fourteen boys and nine girls present; Mr. Joseph Noddie (Indian) teacher; he has attended Mount Elgin Institute and passed a fair examination in all the subjects he has to teach.

First Book, Part I.—(a) Five girls at first lesson; knew most of the words; were told too much by the teacher; no slates.

(b). One boy and three girls; reading better; no slates to write on.

(c) One girl; reads fairly; can point pictures or words named freely; spells fairly, write well, and does addition middling.

First Book, Part II.—Four big boys; know words and speak out well; spell middling, writes very well, arithmetic done well.

Second Book.—Three boys and one girl; know words but speak indistinctly; spelling good, writing very good, but some copy-books blotted; arithmetic middling, work correct but not so far advanced as should be. Boys, 16, 12 and 9 respectively; girl, 14.

Slates needed; work cannot be done without them; all should write and draw; copy-books needed.

No. 1. WALPOLE ISLAND.—Visited this school 24th November; Joseph Noddie (Indian), teacher. Present thirteen Indian boys and seven Indian girls; also two white girls.

First Book, Part I.—Fifteen pupils; reading poor, spelling none, writing good.

First Book, Part II.—Five pupils; reading good, spelling good, writing good, arithmetic, only middling (none far enough advanced).

Second Book.—One white girl; reading middling, spelling very bad, writing good, arithmetic fair.

Third Book.—One Indian boy, does well; reading good, spelling very good, writing fair, arithmetic fair.

This boy would make a fair scholar in any third-class, but he knows really nothing of geography, grammar (composition), and attends so little, that he cannot be expected to progress.

I have offered prizes of books to those who attend most regularly.

Mr. Noddie's English is not very good, but he understands it well.

In this school I again examined four men who would like to teach: Andrew Jacobs, good in English and composition; arithmetic, bad. Peter Thomas, fair in English and composition; arithmetic, very good. Joseph Noddie, poor in English and composition; arithmetic, best. Wm. Peters, good in English and composition; arithmetic, very good.

Messrs. Thomas and Peters have tried the Entrance Examination, but failed in grammar, history, literature, geography and drawing.

Visited Walpole Island No. 2., June 16th, p. m., and found twenty-four boys and twelve girls present. William Peters (Indian), teacher.

First Book, First Part.—(a). Two girls, one boy; reading indistinct and drawing, no slates.

(b) Two girls and seven boys; reading middling, no slates.

(c) One girl and three boys; reading better, writing good, no arithmetic.

(d) Five girls and four boys; reading middling, spelling middling, writing good, printing very good, but no arithmetic.

First Book, Second Part.—One boy; reading good, spelling middling, writing good, and arithmetic very good.

Second Book.—(a) Two boys; reading very good, spelling good, meanings of words middling, arithmetic good.

(b) One girl, six boys; reading very good, spelling good, arithmetic good, geography good, writing good. Girl 15 years of age.

Third Book.—One girl ; reading good, but indistinct, spelling very good, meanings very good, arithmetic, reduction very good, geography very good, writing very good. She is 13 years of age and attends regularly.

This school is clean and neat, but needs blinds and better furniture, (now only inch stuff), a map of the Dominion is needed, also books, slates and copy-books.

School doing well but poor attendance is the cause of much loss of labor.

No. 2, WALPOLE ISLAND.—Visited this school 24th November ; William Peters (Indian), teacher. Present, nineteen boys and eleven girls.

First Book, Part I.—Twelve pupils ; reading good, spelling good, writing good, arithmetic (mental) fair.

First Book, Part II.—Seven pupils ; reading good, spelling fair, writing good, arithmetic good.

Second Book, junior.—Six pupils ; reading fair, spelling fair, writing good, arithmetic not so good as it should be.

Second Book, senior.—Four pupils ; reading good, spelling good, writing good, arithmetic good.

Third Book.—One girl ; reading, writing and arithmetic, all good ; spelling very good, geography fair. Wrote a well-worded, neat letter in proper form asking a friend to visit her for a holiday.

This school is doing well, and now the senior pupils understand what I say to them. I think Mr. Peters should now give less explanations in Indian to the seniors, but must continue with the little ones.

Furniture, far from suitable, but in good repair. Books, etc., needed in most of the classes.

I have offered books for regular attendance and the third-class pupil always gets the prize for her class.

The absence of *dinner baskets* indicates a probable reason for much of the partial attendance.

SARNIA RESERVE.

St. Clair School, Sarnia Reserve, was visited on June 21st, present four boys and five girls.

John Hanna (white man), third-class certificate obtained in Middlesex, 1857 ; has taught three winters in Michigan since his certificate expired (not Indian schools) does not know a word of the Indian language.

First Class, First Part.—Four girls and three boys ; one boy and one girl can read, the others spell the words on the card of lesson seven, first page, Gage's readers. In answer to my questions they answered a little in English : have seen a duck, but cannot tell where, have seen trees, but cannot tell where, nor what is made of trees, nor what grows on them ; could not tell what a bee is, nor where they are to be found. The above will show how little English they know, Arithmetic poor, writing middling, slates and pencils needed.

Second Book.—One boy and one girl ; reading fair, the girl speaks distinctly, the boy does not, spelling good, writing middling, arithmetic, addition well done, especially by the boy ; can do subtraction.

This school was closed from Thursday 18th March, to Tuesday, May 12th. It was closed when I visited it during that time ; I went to visit Walpole Island in March ; but was advised not to venture on the ice with horse and buggy.

I have given a small book to the pupil [in each class who attended most regularly during the interval between my visits, and in one school two boys in the same class were present every day this year.

Visited this school again on the 16th November. Present six boys and six girls.

First Book, Part I.—Three boys ; reading indistinct, spelling on book, poor ; one boy spells well, and good in arithmetic, others poor.

First Book, Part II.—One boy, four girls; reading fair, but not understood; spelling good, arithmetic good, writing good.

Second Book.—One girl; reading good, spelling poor, arithmetic (addition only), good, writing.

Third Book.—Two boys, one girl; reading still indistinct but better, spelling fair, writing good, arithmetic (multiplication good, but division poorly done); no grammar, geography or composition.

As Mr. Hanna does not know anything of Indian he can give no explanations. He is very kind and children evidently like him.

School-house neat and clean, but needs painting. Furniture poor—seats far too high for children to rest feet on floor.

JOHN DEARNESS, ESQ., INSPECTOR, EAST MIDDLESEX.

Indian Schools, Oneida Reservation.

There has not been any change in the *personnel* of the teachers since my last report. The schools are surely, if slowly, improving. The equipment is in most particulars fairly satisfactory, and the teachers seem to know that it is absolutely useless to allow children to repeat words parrot-like, without the corresponding ideas.

Irregularity of attendance is the greatest obstacle to the success of these schools. Some remedy for it ought to be applied. I think if the teachers were supplied with attractive bright colored tickets to be used as rewards for regularity it would stimulate children, if not the parents, to greater regularity. Tardiness is another evil. Sometimes one or more of these schools do not open until ten o'clock. They seldom open sharp at nine, and I have seen pupils dropping in until eleven. The experiment of giving a pretty ticket to every child who is present at nine o'clock and remains the whole day, might be tried. The chief excuse for tardiness is that they do not know the time. There ought to be a good bell on each of the schools, which might be rung every morning at 8.30.

These schools are now well supplied with books, slates and maps. Each of them has a clock and, except No. 2, a globe. The blackboards in Nos. 1 and 3 are not very good. At my February visit, I took, at each of the schools, some creditable specimens of writing and letter-writing, drawing and map-drawing, to be sent to the Colonial Exhibition. The most of these specimens were made while I was at the school.

No. 1, Miss M. A. Beattie (white), teacher, 24th Feb.—12 present. Nineteen, largest attendance this winter to time of visit. School-room clean and tidy. The teacher has collected mottos, pictures, maps drawn by pupils and colored paper patterns, with which the walls are tastefully decorated. The closet (one) is in a dilapidated condition. The school-house is picturesquely situated on a high bank overlooking the Thames. The teacher promises to try to get a row of trees planted around the grounds on Arbor Day.

No. 2, John T. Schuyler (Indian Chief), teacher, 25th Feb.—18 pupils present; 27 registered. This school is now furnished with maps. The parents have bought the books themselves. The order is good and there is evidence of fair progress. The highest class (4 pupils present) can read intelligently in the Second Book, write compositions and letters, and perform operations in arithmetic as far as long division. Excepting the lowest class all the others can write in English, descriptions or relations of simple acts, such as: "The teacher put the slate and the book on the desk."

I again visited the Oneida Indian Schools on the 21st and 22nd September last.

School No. 1.—Miss Mary Beattie, teacher (white). Attendance small. A camp-meeting in the neighborhood has, for the past week or two, attracted several of the pupils from this and school No. 3. Miss Beattie has 16 pupils in Part I. of the First Book, 2 in the 2nd Part, 7 in the Second Book and 6 in the Third Book—31 in all. I examined the classes chiefly in speaking and writing English. In this, their most important school work, they are making fairly satisfactory progress. The teacher com-

plains of the great difficulty of keeping the school floor clean, owing to the community's using the school house as a lodge-room for Temperance, Foresters, Orange and other societies. She says the majority of the people of both sexes use tobacco; the floor at these meetings is made filthy by the copious expectorations of the tobacco chewers, and although she has remonstrated earnestly with them, they will neither desist from thus soiling the floor and furniture, nor clean the house after using it. This uncleanness is, Miss Beattie says, the most disagreeable and discouraging obstacle in the way of her keeping the school in a satisfactory condition. I saw one of the prominent offenders (?) about it. He said, "no use, Indian must spit."

No. 2.—John T. Schuyler (Indian), teacher. I regret that I cannot yet report that the teacher of this school has passed the minimum examination required of the teachers of Indian schools.

The school was very clean and tidy; outbuildings clean; order excellent. Fifteen pupils present; eleven of them copied legibly a sentence written on the blackboard, but only five of them understood its meaning. The latter were able to describe in writing any simple act performed by myself or one of the pupils.

This school is not so well supplied with apparatus and other requisites as Nos. 1 and 3. I shall make a special report on its needs in a few weeks.

No. 3.—Elijah Sickles, teacher (Indian). Mr. Sickles passed the High School entrance examination at last midsummer. He seems to be working hard to advance his pupils. This school is now very well supplied with books, slates, maps, blackboards, globe and clock.

Twenty-one pupils present; two of them fairly thorough in arithmetic as far as division and read pretty well in the Third Book. Eight could describe simple acts in English. The teacher says he is "trying to teach them to understand what a thing means before they learn it by heart."

I think the Indian Schools would be stimulated and improved by apportioning even a small grant among them, on the basis of the average attendance of pupils and the qualifications of the teacher. Let, say, 75 per cent. of the grant be paid on average attendance, to go to the parents of the pupils, and the balance to be paid as a bonus to the teachers who work themselves up to the standard prescribed by the Department, and conduct their schools efficiently as per the Inspector's reports.

J. S. CARSON, ESQ., INSPECTOR, WEST MIDDLESEX.

Indian School, Mount Elgin.

The Mount Elgin Industrial Institution is now capable of giving adequate instruction to the children in attendance. The teacher has had three years' experience in a Public School, besides being an undergraduate of Toronto University. The frequent change of teacher is very detrimental to the progress of the pupils. The very able and skilful manager, Rev. Wm. Shepherd and myself are considering how best to meet this difficulty, and we are hopeful of reaching a satisfactory solution. The detailed report shows what appliances are yet needed.

The pupils are healthy, well clad, clean and, so far as I could judge, contented. Their wants appear to be fully met, in fact, to be an Indian child in this Institution is to know nothing of the hardships of many white children.

The other schools on the Reserve are all open. The attendance is irregular, punctuality is hardly known. I am sorry to say some of the teachers absent themselves from their schools for insufficient reasons. They are not making much progress in methods of teaching, at the same time some good work is being done, especially in Mr. Fisher's school.

R. GEO. SCOTT, Esq., INSPECTOR, COUNTY OF RENFREW.

Indian School, Golden Lake Reserve.

I visited the school twice during the year, on the 15th of January and on the 9th of September.

At the first of these visits I found little, if any, change from the time of my previous visit, 11th November, 1885.

At my second visit a marked improvement in every respect was manifest.

There were eighteen pupils enrolled, six boys, twelve girls, of whom eleven were present.

The pupils are classified thus :

	Part I.	Part II.	2nd Book.	3rd Book.	4th Book.
On the Register	7	2	3	5	4
Present	4	2	1	4	..

Second Book.—Pupil read indifferently—could work subtraction accurately and neatly.

Third Book.—Reading very creditable; the pupils understood English very fairly; beginning division; learn geography from an old map of the world; writing good.

The writing of the boy in the 4th Book was very good.

The improvement in the school is chiefly owing to the fact that last fall the teacher began to learn the Indian language, and has systematically prosecuted her study of it ever since, so that she is now able to explain to the children in their own language the meanings of most of the words in the reading lessons. She promised me to continue her study of the language until she became able to converse freely with the pupils in it.

As a knowledge of the Indian language is a primary and paramount requisite for a teacher in this school, and as neither the Indian agent, Mr. Paul, nor myself know of any duly qualified teacher at all acquainted with it, I advised him in view of the progress Miss Stack (the present teacher) had made in learning it, to re-engage her for another year.

In a former report, I had expressed the opinion that the teacher's salary, \$150, was inadequate, and recommended that it should be increased. In July last, the Indian Agent wrote me that he had been notified by the Department of Indian Affairs that the sum of \$150 had been voted by Parliament to increase the salary to \$300. After my visit in September, I wrote to the agent recommending that Miss Stack should receive this increased salary.

A. McNAUGHTON, Esq., INSPECTOR, COUNTY OF STORMONT.

Indian School, Cornwall Island.

I visited the school for Indian Protestant children on Cornwall Island, and found eight children present under the instruction of Mr. Louis Benedict, a native teacher well qualified for the office, who was educated at Brantford.

Two of the pupils were in the Second Class, and the remainder in the First Class.

The pupils showed considerable improvement in their knowledge and use of English, as well as in reading, spelling and arithmetic.

D. FOTHERINGHAM, Esq., INSPECTOR, SOUTH YORK.

Indian School, Georgina Island.

I visited the Indian school on Georgina Island on the 5th May last. I found it in charge of Mr. Robert Mayes as before, with seven boys and six girls present.

The deportment and spirit were excellent, and the work fair, except in arithmetic, in which there seemed a lack of power to think independently, though the exercises were not of an unusual or difficult character. Writing and singing I found superior, and reading and definitions creditably intelligent.

The school would no doubt have taken a better average had it not suffered through sickness on the island, which, in addition to the indifference of some parents, rendered attendance irregular.

The teacher, too, had been sick for several weeks, and besides the school-house had been used in connection with some entertainment, which, all put together gave for the half-year up to the time of my visit 603 days of aggregate attendance, and 284 days of aggregate absence for the scholars on the roll.

C. A. BARNES, Esq., INSPECTOR, EAST LAMBTON.

Indian Schools at Kettle and Stoney Point.

Kettle Point.—I visited the Kettle Point School in the month of June, but found it closed on account of measles.

I visited it again November 2nd.

Attendance: number on the roll, eighteen; number present, nine.

III. Class.—Two pupils; reading and spelling fair, arithmetic good, writing on copies is very good. Geography in this class is not very good.

II. Class.—Two pupils; reading somewhat monotonous, spelling (oral) very fair, addition in arithmetic fair, writing very good; copies clean and free from blots.

I. Part of 1st Book.—Four pupils; reading not very good, oral spelling fair, writing on slates very fair, addition in arithmetic slow.

I. Part.—One pupil; doing fairly.

Equipment.—Seats and desks very good. The map of the Dominion is a very inferior one; it is too small, and the Provinces are not in their proper relative position to one another. The map of Ontario is a fair one.

I suggested in one of my previous reports that the blackboard should extend across the end of the room, but it has not been done. The piece now in the school-room is not worth much.

Mr. Herbert Johnson is, at present, teaching in this school, but as he has only been there a short time, he has scarcely become accustomed to his work. I think he will do very well.

A register is required.

Stoney Point.—The school at this reserve has been closed for some time.

They have erected a new building but it is not completed yet.

The building is about 24 ft. by 16 ft. with ceiling about 10 ft. high.

It will require 500 ft. or 600 ft. of flooring, and about 1,000 ft. for inside work to finish it. Also doors and windows. Ten desks for pupils, teacher's desk, two chairs, a good blackboard and stove, and the necessary school maps, books, etc., would put this school in good condition.

I think the Department of Indian Affairs should aid them in the completion of the building and in properly equipping it for school work.

Rev. Dr. Sutherland, Missionary Secretary of the Methodist Church, sent a letter to Chief Johnson, informing him that as soon as the building was ready another teacher would be engaged to conduct the school.

I have not visited this school during the present half-year as, I learned from Mr. A. English, Indian Agent, that nothing farther had been done with the building.

It is my intention to go out with Mr. English, when he next visits the reserve, to see if any immediate steps can be taken for completion of building, so that the school may be opened in January next.

JAMES MCBRIEN, Esq., INSPECTOR, COUNTY OF ONTARIO.

Indian School, Township of Rama.

The school is taught by Miss S. E. Batty. She has not been professionally trained, and therefore the management, government and discipline, are not what we would like to

see. Fishing, hunting and sugar-making, are much more highly prized by the Indians than education. These pursuits appear to give them a distaste for school work. Hence, the attendance of the pupils is extremely irregular. At my last visit there were twenty-two present.

The equipment is very good. The school house is very comfortable and ample in accommodation.

The status in the various subjects is as follows :

- (1). Read fairly, but mechanically.
- (2). Spell fairly well.
- (3). Write very well.
- (4). Arithmetic, slow, inaccurate, etc.
- (5). Drawing, very good.
- (6). Geography, indifferent.
- (7). Grammar. There were no pupils present in this subject.

A. B. DAVIDSON, Esq., INSPECTOR, NORTH YORK.

Indian School, Georgina Island.

On the 26th of October I visited the Indian school on Georgina Island. On reaching the island I was conducted by the chief to a neat, white-painted frame building, situated near the Mission Church and Council Hall, and surrounded by an unfenced play-ground, on which the Indian youth were earnestly engaged in a game of base ball.

I found in attendance at school fourteen boys and seven girls. The register shewed an average attendance for the session of seventeen. The number of boys of all ages on the roll was fifteen, and of girls, ten ; and the number of children of school age on the island is twenty-nine, and of all ages up to sixteen, forty-six.

The school-room is well lighted, heated and easily ventilated, and measures 27x24x10. It is supplied with excellent seats, desks and blackboard. On the walls hang maps of the World, Dominion and Ontario, all in good condition ; also a set of tablet lessons and a numeral frame, and on the teacher's desk stood a small globe.

All the classes were represented up to the Third Book, in all of which their proficiency in reading and arithmetic was fair, in writing and singing, excellent, especially the singing of the kindergarten songs. Geography and grammar are taught the more advanced classes, in which studies some of the pupils shewed considerable proficiency.

The chief and some of the parents were present and showed no little interest in the exercises.

The teacher, Robert Mayes, is missionary as well as teacher, and possesses that energy, tact and ability, which eminently fit him for the position.

DONALD MCCAIG, Esq., INSPECTOR OF ALGOMA.

Indian Protestant Schools, Algoma.

During the year 1886, only four Protestant Indian schools have been in operation in the district of Algoma. Of these, two are situated within about four miles of the village of Sault Ste. Marie, and the remaining two, not far from Little Current, on the north shore of Manitoulin Island. Another school, formerly in operation at Garden River, has been closed during the year.

Wawanosh Home for Indian Girls.—This is an English Church Mission Industrial school, situated about four miles from the village of Sault Ste. Marie. On my visit here (June 29th) I found twenty-four names on the register and twenty-one pupils present. Of those, I found nine in the 1st Book, ten in the 2nd, and two in the 3rd. The reading in all the classes was much below the average reading in the same classes among white children, arising chiefly from the fact that many of the pupils were only learning the language in which they were being taught.

The spelling throughout was much better than would have been expected from the character of the reading. A good beginning was also made in writing in the two higher classes, while those in the 1st Book had also made some progress in the formation of letters and words on their slates.

In arithmetic, little more than ability to do the mere mechanical work in the four simple rules had been attained. About the same may be said of geography—a few definitions and a little local geography being the extent in this branch.

The teacher, a Miss Cunningham, seemed to be fairly educated and very anxious for the improvement of her pupils, but, nevertheless, the standing of the school is not very satisfactory. The school-house is a very substantial stone structure, and the surroundings are very good, but the seating and internal arrangements are the contrary. Two long tables, with long backless benches for seats, and insufficient room, characterized the school-room.

Shingwauk Home for Indian Boys.—This is also an English Church Mission school, under the same management as the girls' home, also industrial in its character. It is much more extensive than the former, and doing also better work. The main building consists of a very large substantial stone structure, containing, besides the school-room, sleeping-rooms, laundry, kitchen, dinning-room, offices, etc. The grounds and surroundings are in good condition and well kept. In the immediate neighborhood are the workshops, consisting of shoemaker, blacksmith and carpenters' departments; farming and horticulture is also included in the course of training at this institution. (June 30th). When I visited this school I found on the register forty-nine names, and thirty-eight in attendance in the school-room. The others I learned were engaged in work about the various industrial departments. Of those present, two were in the 4th class, eight in the 3rd, eight in the 2nd, and twenty in the various divisions of the 1st. In the two higher classes the reading was fair, with the exception of a kind of monotonous drawl, which seems to prevail in all Indian schools. Spelling, both oral and from dictation, was better than would have been expected from the reading. Indian children seem to have a good idea of form, and appear to catch up the shapes of words easily. Writing, perhaps from the same cause, was fully up to the average.

In this school considerable progress has been made in arithmetic, so far as mere book work goes, the more advanced pupils being somewhat expert in mechanical operations in the compound rules, fractions and simple interest. But in any problems requiring analytical power, scarcely any attempts were made at solutions.

Geography and vocal music was also taught here with a fair amount of success. The present teacher, a Mr. Tinsdale, holds a 2nd class Normal School certificate, and had just entered upon his duties a short time previous to my visit.

Altogether the Shingwauk school is far in advance of any of the other Indian Protestant schools in the district. Here also the pupils learn much pertaining to the arts of civilized life, which must give them an immense advantage over their less favored brethren in the after business of life.

Sheguiandah Indian School.—This is also an English Church Mission school, but without the industrial features of the two former. On September 1st, when I visited this school, the blueberry harvest was just at its best, and with twenty-nine names on the register I found but four pupils present, Indians and their families being all absent from their homes on their berry-picking excursions, which would account in part for the condition of the school at this particular season. Judging, however, from the reports of the late Inspector (Mr. McLean), the evil of irregular attendance seems to be here at its maximum, for I find that at a visit in October, 1885, only five pupils are reported present, out of twenty-eight enrolled on the register. Of course, under these circumstances the standing of the school is very low. Of the few pupils present at the time of my visit in September last, scarcely one was able to read words of three letters. I believe the chief difficulty with Indian schools arises from the class of teachers employed. Here, if anywhere, energetic trained teachers are needed, who understand how to teach, and have an interest in their work; but instead of this, those who could find occupation no where else are employed.

The present teacher of the Sheguindah school is a Mr. Fred. W. Sims, who holds only a permit to teach an Indian school.

Sucker Creek School.—This is a newly opened school, about three miles from Little Current, on the north shore of Manitoulin Island. I visited this school on the 2nd September, three days after it had been opened for the first time. The school-house, also, which is new, is surrounded by the most comfortable Indian settlement I had visited in the district. Here the Indians are engaged chiefly in agriculture, and at the time of my visit were busy cutting their harvest, which was very fair and of considerable extent. Of the school there is little to be said; it had only been open three days, and of thirty children in the section eighteen were present, just beginning their letters.

This school is taught by a Miss Lizzie May, also holding only a permit to teach an Indian school. Were I to suggest anything in the way of improvement in the management of those Indian schools, it would be that regularly qualified teachers should, if possible, be employed. I believe as matters now stand, money spent on these schools is almost thrown away.

W. H. G. COLLES, ESQ., INSPECTOR, EAST KENT.

Indian School, Moravian Reservation.

I visited the school on the second day of September, and found Mr. D. Edwards on the grounds at 8:30 a.m., and shortly after 9 o'clock twenty pupils were assembled—eleven boys and nine girls. Owing to an epidemic which fell upon this people lately, and caused school to be closed for some months, the pupils did not show much progress in school work. They can read well and intelligently in First, Second, and Third Books, can write and spell fairly, and can apply intelligently the simple rules in arithmetic. They can write a fair composition on familiar subjects, and they have a knowledge of local geography. Mr. Edwards has taken much pains to teach them writing, buying copy books himself for those who cannot obtain them from their parents.

They seem to enjoy reading in the New Testament, each reading a verse or two in the opening exercises. Mr. Edwards takes pains to give them sound moral, as well as mental training, and they seem to have very clear ideas of right and wrong.

It is difficult to keep these children regularly at school; naturally indolent, they avail themselves of every excuse, however trifling, to remain at home, and they leave school altogether for a life of idleness, as soon as they are sturdy enough to break away from parental control. Many keep their children at home to avoid buying a slate or copy-book, who would allow them to attend if these things were supplied. I would recommend that slate, copy-book, and reader be furnished by the agent, on the order of the teacher, for each child of school age on the reservation, and that these be kept in the school-house by the teacher. The price of these requisites could be deducted from the quarterly allowance. Having thus a "proprietary interest" in school they would attend much more regularly, would not be kept out for fear of having to buy these necessities, and when in school would not be retarded for want of them.

The Natural History Chart supplied on my recommendation affords much interesting study; the children observe closely and draw very correct conclusions as to the animals represented. They are fond of reproducing some of the pictures on their slates, the sword-fish being their favorite so far, perhaps on account of its warlike construction, and the simplicity of the outline. Indians are supposed to be fond of high colors, but I did not find among the twenty children any article of a red color, except a light red wreath round a handkerchief on the neck of one of the girls; blue, brown, and grey are the colors chosen.

These children are very shy and very emotional; easily excited, easily led, and easily pleased or offended. A teacher could do much good by going about among the people and influencing them to habits of greater industry and more study; but the amount paid to Mr. Edwards—\$350—is not sufficient to warrant my asking him to perform this service in addition to his duties in the school-room.

APPENDIX I.—REPORT ON MECHANICS' INSTITUTES, FREE LIBRARIES
AND ART SCHOOLS.

REPORT OF DR. S. P. MAY, SUPERINTENDENT OF MECHANICS' INSTITUTES AND ART
SCHOOLS.

SIR,—I have the honor to submit herewith my report on the Mechanics' Institutes, Free Libraries, Art Schools and other institutions receiving Government aid in Ontario, for the year ending 1st May, 1886, and beg to direct your attention to the following:—

I.—Mechanics' Institutes.

1. *Institutes Reporting.*—The number of Institutes reporting for this year is 131. This is a slight improvement on last year, when only 122 returns were received in time for the annual report. The legal time for the Directors of Mechanics' Institutes to make returns to this Department is between the first day of May and the first day of November. Unfortunately some of the Inspectors overlook this, and the consequence is that the Department cannot make a complete annual statement showing the amounts from Government Grant paid to the Institutes, which should be laid before the Legislature for each year. It would greatly facilitate the work of the Department if the Directors would forward their reports soon after the annual meeting on the first of May; it would also be to their own advantage, as their share of the Government Grant would be in their hands at a much earlier date.

2. *Institutes not Reporting.*—Fifteen Institutes failed to report for this year. Probably some of them are closed; if so, the old officers to whom the blank forms are sent should notify the Department, so that its regulations might be carried out.

The new Act of 1886 will no doubt make a great improvement in this direction, as the Institutes are now paid on results, and on money previously raised from local efforts, they cannot as heretofore obtain large amounts from the Government Grant in anticipation of raising money as a set-off to that which has probably been already expended.

3. *Institutes Closed.*—Three Institutes are reported as closed. *Palmerston Mechanics Institute* is reported as having been closed two years, and the books, etc., are now liable to the disposal of this Department. *Picton Mechanics' Institute* was closed several years ago. I visited Picton in 1884 and found that the books had been sold to the High School. I called a public meeting at which the Institute was to be reorganized, new directors were elected, and the Chairman of the High School Board promised to return the books to the Institute. Since that time notice has been sent to the Department that the newly-appointed Secretary-Treasurer has absconded with the money which was collected. *Oshawa Mechanics' Institute* has been closed for several years. I visited the town in 1884 and found that Dr. Rae had purchased some 400 or 500 books, with the glass cases, for \$100; that he still held possession of them and was prepared to hand them over on payment of the sum advanced, if the Institute be reorganized. A Committee was appointed at a public meeting, but have not yet reported to this Department.

4. *New Institutes.*—It is gratifying to state that eight towns and villages availed themselves, during the year, of the liberal terms now offered by the Department for the establishment of Mechanics' Institutes.

5. *Classification of Institutes.*—Last year only forty-eight Mechanics' Institutes conducted Evening Classes; there are now fifty-eight reported.

6. *Receipts during the Year.*—The receipts for 1885-6, which includes the balances of previous year, are \$24,464 less than those of 1884-5. This is partially accounted for by the balances of 1885-6 being \$22,744 less than those of 1884-5.

The members' fees are slightly in excess of last year. This is accounted for by the increased number of Institutes reporting, and not from advanced fees, which still vary from twenty-five cents to \$2 per annum. An excellent plan has been adopted by some of the Institutes, where the municipality is liberal, of throwing the Reading Room open free.

The Municipal grants still exceeds the Legislative grants. This is an important factor in the success of Mechanics' Institutes. Wherever municipal authorities promote and encourage the work of the Institutes, they are sure to prosper, and the financial outlay is returned an hundred-fold by the improved morality of the people. It has even been remarked that this improvement is noticeable in the children of parents who make use of the Library and Reading Rooms.

7. *Expenditure during the year.*—The total expenditure is about \$23,000 less than that of the preceding year. There has been a reduction in the expenditure for books and miscellaneous, including fittings, etc.

8. *Donations of Books.*—The donations of books to Mechanics' Institutes are valued at \$521.

9. *Assets and Liabilities.*—It is gratifying to state that there has been an increase of over \$20,000 in the assets of Mechanics' Institutes during the year 1885-6, and at the same time a decrease of \$1,700 in the liabilities.

10. *Number of Members.*—The membership has increased in the proportion of 87 for each Institute reporting. The total number of members for 112 Institutes in 1884-5, was 16,259, an average of 138 members to each Institute. The total number of members for 131 Institutes in 1885-6, is 29,492, an average of 225 members to each Institute.

11. *Number of Volumes in Library, and number of volumes issued.*—There has been 33,877 volumes added to the library during 1885-6. It is to be regretted that about one-third of this number are works of fiction. The total number of volumes issued has increased from 528,971 for 112 institutes in 1884-5, to 679,096 volumes for 131 Institutes in 1885-6. There is a marked increase in the number of works of fiction issued; the total number was 414,935, nearly 54 per cent. of all the volumes issued. It must be remarked, however, that about 45 per cent. of the works of fiction issued by 131 Institutes and Free Libraries throughout this Province, were loaned by the Toronto Free Library. The total number of works of fiction is 11,453, and they issued 187,025, an average of about sixteen times for every work of fiction in the library.

12. *Reading Rooms.*—The Reading Rooms are gradually increasing in number, and there is an increase of eleven over the preceding year. There has been over 1,000 periodicals and newspapers added to the Reading Rooms during this year.

13. *Evening Classes.*—There is an increase of thirteen evening classes over preceding year. Twenty-four Institutes conducted classes in elementary subjects, and 51 Institutes conducted classes in drawing. The subjects taught in the drawing classes were the same as Grade B in the Art Schools, and the students in Mechanics' Institutes presented themselves for examination the same as Art School students.

Specimens of Examination work in drawing, including Freehand, Geometry, Perspective, Model Drawing, and Memory and Blackboard Drawing, were exhibited at the Colonial and Indian Exhibition in London, from the following Institutes :

Aurora.	Goderich.	Prescott.
Ailsa Craig.	Guelph.	Preston.
Almonte.	Kemptville.	Penetanguishene.
Arnprior.	Mount Forest.	Richmond Hill.
Barrie.	Milton.	St. Cathrines.
Brantford.	Midland.	Schomberg.
Berlin.	Mitchell.	St. George.
Blyth.	Newmarket.	St. Marys.
Brockville.	Napanee.	Seaforth.
Carleton Place.	Orangeville.	Stouffville.
Cheltenham.	Orillia.	Smith's Falls.
Claude.	Paris.	Strathroy.
Durham.	Parkhill.	Stratford.
Elora.	Perth.	Streetsville.
Galt.	Peterboro'.	Whitby.
Garden Island.	Port Perry.	Woodstock.
Georgetown.		

Additional exhibits were also sent as follows :

Carleton Mechanics' Institute, specimens of Machine Drawing, Working Model of Locomotive Engine, Ornamental Inlaid Table, and Model of Shanty.

Guelph Free Library, specimens of Carving in Wood.

Garden Island Mechanics' Institute, Working Model of a Harbour Tug Engine, and a Model of a dam of timber as prepared for running the rapids.

Galt Mechanics' Institute, specimens of Machine Drawing.

Milton Mechanics' Institute, specimens of Freehand Drawing.

Port Perry Mechanics' Institute, specimens of Freehand, Perspective, Geometry and Mechanical Drawing, and Shading from the Flat.

Whitby Mechanics' Institute, specimens of Freehand, Perspective, Shading from the Round, and Outline from the Round.

The following extracts are from the British press :

"It should be noted to the credit of the Province, that the Ontario Government is very liberal in encouraging mechanics and artisans to improve their spare time by reading and studying the different branches of science applicable to their respective pursuits. It is mentioned in the Exhibition catalogue, prepared by Dr. May, that the Mechanics' Institutes receive Government aid. The value and extent of this pecuniary support may be gauged from the simple fact that last year no less than 147 of these institutes were in existence. Respecting the work accomplished at them, it is apparent that drawing, suitable for mechanics, is one of the most popular subjects of study. As many as fifty institutes send to the Exhibition specimens of examination work in freehand, geometrical, perspective, model and memory drawing. In addition, we notice the following :

Carleton Place Mechanics' Institute sent a large collection of specimens of machine drawing ; these, we understand, are chiefly done by workmen employed in the workshops of the Canadian Pacific Railway. They exhibit considerable skill, and reflect great credit on the teachers, who, we are informed, were trained at South Kensington. Probably the most interesting, ingenious and beautiful piece of work, showing industry and perseverance, is a working model of an English locomotive engine, made to the scale of one inch to the

foot, exhibited by Mr. Lacey R. Johnson, President of the Institute. This model has been greatly admired by persons interested in machinery, who pronounce it to be one of the most perfect and ingenious working models ever exhibited. This same institute also contributes a beautiful ornamental inlaid table, the work of Mr. A. Parker, and a model of dwelling-house or shanty, as built by the early settlers in Canada, by Mr. James McVety.

Guelph Free Library exhibits some very choice specimens of carving in wood by Mr. J. O'Brien and several students.

Garden Island Mechanics' Institute is well represented. Mr. Anthony Malone, President of the Institute, exhibits a perfect model of a dram of timber as prepared for running the rapids of the River St. Lawrence. Ten or more of these drams are lashed together and called a raft. It is remarkable that the rafting and forwarding of square hewn timber for the Quebec market was commenced at Garden Island, from which this model is sent.

Mr. Archibald Cumming exhibits a very beautiful working model of a harbour tug steam-engine from the same institute.

Galt Mechanics' Institute send some excellent specimens of machine drawing, done by workmen employed in the Grand Trunk Railway workshops.

Port Perry Mechanics' Institute exhibits a large collection of drawings, including freehand, linear perspective, practical geometry, mechanical drawings, shading, etc.

Whitby Mechanics' Institute contributes a collection of drawings in freehand perspective, and shading and outline from the round.

The people of Ontario are to be congratulated on the excellence of this portion of their exhibit, which has largely contributed to show visitors at the Exhibition the industry, zeal, and perseverance of the working classes of the Dominion in obtaining practical knowledge, invaluable to them in their daily life, and in rendering them intelligent and self-reliant citizens."

The *Canadian Gazette*, in a lengthy article on Education in Ontario, observes that since the time of Confederation, Mechanics' Institutes have been established, and an annual grant given to each institute by the local government, provided it supplies a library, reading room, and evening classes. This important branch of the public schools has been in the hands of the Provincial Education Department since 1880, and is now directed by the Minister of Education, to supply practical Education of value to adult artisans. There are about 150 of these mechanics' institutes in operation throughout Ontario in a population of only two millions, and of these over fifty are now branches of the Art schools. The work from several institutes is now on display in the Court. From it may be gathered that a practical knowledge of drawing is imparted—first, by freehand; second, by geometry and perspective; and, third, by industrial drawing. The industrial designs prepared at these mechanics' institutes have elicited general commendation. Mechanics, practical chemistry, and the various branches of physics, are also taught in these institutes, thus bearing directly upon the textile and other manufactures of the country.

The *Press* says the work from the Mechanics' Institutes has attracted a great deal of attention from manufacturers and others in connection with the growing recognition of the importance of training mechanics and artisans in industrial drawing.

II.—Art Schools.

Appendix I, Art Schools, shows the Course of Instruction, Purposes of the School, Occupations of Students and their purposes of study, Rules for Examination, number of Certificates granted, etc.

The examinations were held on the 1st and 2nd March for this year, in order that the students' work might be exhibited at the Colonial and Indian Exhibition in London, England.

In addition to the Art Schools and Mechanics' Institutes, twenty-eight Public and High Schools, Collegiate Institutes and Colleges, took part in the examinations.

The following is a list of the examination papers sent by the Department to seventy-eight Art Schools and Branch Art Schools on the 1st March, 1886 :—

GRADE B. ●

Freehand Drawing from the flat.....	2,283
Practical Geometry	2,234
Linear Perspective	1,946
Model Drawing.....	2,067
Memory and Blackboard Drawing	1,869
Total	10,349

GRADE A.

Shading from flat	112
Outline from round	123
Shading from round	109
Drawing from Flowers.....	91
Advanced Perspective	94
Descriptive Geometry	75
Drawing from Dictation	98
Machine Drawing.....	49
Building Construction	34
Industrial Design.....	129
Total	914

The number of Certificates granted will be enumerated in the Appendix.

Colonial and Indian Exhibition, London, 1886.

The students of Art Schools in Toronto, Ottawa, London, and Kingston, contributed largely to the success of the Educational Exhibit. The large collection of Drawings, Paintings, Carving on Wood, Modelling in Clay, Plaster Casts, Painting on China, etc., were much admired, and especially so the specimens of Industrial Designs, which were acknowledged by experts to be of considerable merit, and valuable exhibits from a new country, showing as they do that encouragement is given by the Government to the development of artistic work applicable to trades and manufactures.

The Marquis of Lorne was so much pleased with some of the designs for wall paper from Toronto, that he recommended me to place them in the hands of some English manufacturers. This I could not do, as they are the property of the students.

Before leaving England, having received an intimation that Her Majesty the Queen would be pleased to accept a few specimens of Art school work from Ontario, I selected some exhibits from the different departments, and forwarded them with a letter referring to our advancement in Industrial Art education during the past few years, and the great interest H. R. H. the Princess Louise and the Marquis of Lorne had taken in the promotion of Art work during their residence in Canada.

In reply, I received the following letter from General Sir Henry Ponsonby, Private Secretary to the Queen :—

OSBORNE, January 8th, 1886.

DEAR SIR,—The articles forwarded by you arrived here to-day, and I have given them to the Queen, who was very much pleased with them, and has commanded me to thank you for sending these well-executed specimens of the work of the Students of the Art Schools, Education Department, Toronto.

I have the honor to be, Dear Sir,
Yours faithfully,

(Signed) HENRY F. PONSONBY.

Each of the Art Schools had separate compartments for the display of their exhibits. The British press made frequent notice of the excellence of this section of the Educational Court.

The following extract is from the *Canadian Gazette* :—

"The work of these Art Schools of Ontario is such as would do credit to many older countries. The origin of some of the exhibits is interesting. In view of the Exhibition, the Ontario Manufacturers' Association offered medals for the best designs for various manufacturing purposes, and Dr. May, as Superintendent of Art Schools, at once issued circulars to the schools, notifying them to prepare forthwith various designs. The Toronto School designs were prepared for paper-hangings; in Ottawa for iron-work, such as railings, fences, etc.; in London, designs for sideboards, etc.; and in the Kingston School for mantelpieces and overmantles. Considering, then, the fact that no selection is made in the exhibits in this class, all the competitive designs being shown, and that but a fortnight was allowed for the work, Ontario has reason to be proud of the result. It unquestionably forms a most important part of the Court. From the Toronto School of Art there also comes excellent work in electro-metallurgy taken from plaster casts and electrotypes from nature, as well as models in clay, and plaster casts from clay. Good industrial designs are also shown. The Art School of London comes out strongly in painting on china. Even the baking is done at the school, and the product is excellent, illustrating a frequent means of livelihood for young ladies in the Province. By the Kingston exhibits mechanical work is illustrated in such a way as to call forth the admiration of the Principal of the South Kensington Art Schools.

Extract from *Globe* :—

"The Industrial Art display does infinite credit to the Province and to the efforts of the Government to promote this branch of study, and is calculated even to a greater degree than the Art Exhibit in the Albert Hall to open the eyes of the British public to Canada's artistic progress of recent years. The Ontario School of Art, the Western School of Art, London, and the Ottawa and the Kingston Art Schools, send specimens of every class of work—in oil and water-colors, in freehand drawing, industrial designs, architectural and machine drawing, shading from the flat and from the antique, *repoussé* work, chasing in brass, modelling in clay and plaster casts from clay, electro-metallurgy, and carving in wood. Detailed references, as we have said above, are out of the question on the present occasion, but mention must be made of the high opinion expressed by competent authorities of the productions in industrial art; of the interest aroused by the specimens of Examination work in the Elementary subjects, such as Geometry, Perspective and Model Drawing, of the admirable water-colors and painting on china, executed by the students of the London School of Art; and of the excellent general work shown from Toronto, Kingston, and Ottawa."

Extract from a Special Report on the Educational Court of Ontario, by Mr. H. C. Bowen, Principal of Finsbury Training College :—

"The machine drawing and the carving in wood sent in by the Mechanics' Institutes, formed a most interesting collection, including many specimens of really excellent work; as did also their freehand drawings. But the most attractive and most memorable exhibit of all was the large and varied collection of art-work from the Art Schools of Toronto, London, Ottawa, and Kingston. The time at my disposal was all too short to allow of my doing full justice to all its many merits in detail. But the general impression made on me—especially in the case of Ottawa—was one of considerable pleasure, and—if I may be honest without offence—not a little surprise. The mere enumeration of the varieties of work from the Art Schools is sufficiently striking: life studies, oils and water-colors, freehand drawings of every kind, industrial designs, architectural and machine drawings, shading from the antique and from the flat, chasing in brass, modelling in clay and plaster casts from clay, carving in wood, painting on china, and even electro-

metallurgy and *repoussé* work. It is somewhat difficult to know what to mention amongst so much. I may say, however, that the advanced work generally of the Ontario School of Art (Toronto) was excellent; the wall-paper patterns showed great taste in design and coloring; the drawings from the antique were very good indeed, but perhaps a little too heavily shaded; and the wood-carving, metal-work, and plaster casts were in many cases highly creditable. I noticed, by the way, a portrait of Dr. May in plaster, which, though undoubtedly like, was by no means flattering. The Western School of Art (London) showed some very good painting on china. The Ottawa School of Art deserves very decided praise. The paintings of flowers and plants, with industrial designs invented from them, were delightful—excellent in form and composition and color. The life-studies were very good indeed, and the water-colors were highly creditable. The drawings of a wrought-iron fence, and the collection of industrial designs which were shown at the recent Antwerp Exhibition, deserve very decided praise. From the Kingston Art School the original designs for industrial uses were again strikingly good."

Extract from *Morning Post* :—

"A very remarkable and deeply interesting exhibit is made by the Educational Department of the Province of Ontario, Canada, which is arranged in the space between the Canadian exhibits and the section devoted to New Zealand. Dr. Samuel Passmore May, Superintendent of the Mechanics' Institutes and Art Schools, has arranged the display in a manner which reflects greatly upon his judgment and organizing power. The Court is decorated in an artistic manner, and embellished with busts of leading citizens who have devoted themselves in an especial manner to the advancement of education. The fine arts have not been neglected, and there are models, paintings, drawings from the life, casts in bronze, wood carvings, paintings on porcelain, and a variety of other interesting proofs of the zeal which is exercised in Toronto, as elsewhere in Canada, in all that concerns artistic training. Some of the paintings show considerable talent, but the wood carvings and bronze work are exceptionally excellent. One cannot help thinking, when examining the work here displayed, that the importation of a few well-trained Italian teachers of drawing, past masters in the art, such as are to be found in Rome or Florence, and who would willingly emigrate, would prove of inestimable advantage to the young Canadians, who have evidently talent, but which has not always been well developed, possibly from a lack of proper direction."

Several other newspapers gave most favorable notices, which want of space forbids mention.

S. P. MAY.

January, 1887.

I.—MECHANICS' INSTITUTES.

The following abstracts are taken from the Mechanics' Institutes and Free Libraries Reports for the year. For details see Tables A, B, C.

1.—*Institutes Reporting, 1885-6.*

Number of Institutes reporting for this year. 131

2.—*Institutes not Reporting, 1885-6.*

Alexandria, Alliston, Bradford, Glencoe, Lancaster, Markham, Manitowaning, Merritton, Petrolea, Port Colborne, Sarnia, Thorold, Thunder Bay, Vittoria, Watford.

3.—*Institutes Reported Closed.*

Palmerston, Picton, Oshawa.

4.—*New Institutes Incorporated in 1886.*

Belmont, Beeton, Cobourg, Dresden, Niagara Falls South, Hamilton, Waterford, Lion's Head.

5.—*Classification of Institutes Reporting in 1885-6.*

Institutes with libraries, reading rooms, and evening classes	40
Institutes with libraries and reading rooms	39
Institutes with libraries and evening classes	18
Institutes with libraries only	34
Total	131

6.—*Receipts during the Year 1885-6, together with Balance from previous Year.*

Balances from previous year	\$10,381 17
Members' fees	14,503 92
Legislative grants	24,949 00
Municipal grants	26,122 56
Fees from evening classes	1,462 86
Lectures and entertainments	3,799 78
Other sources	11,917 28
Total	\$93,136 57

Fees from Members.—The fees charged for membership vary from 25 cts. to \$2 per annum. The usual fee for library and reading room is \$1 per annum. In a few Institutes, where large municipal grants are made, the reading rooms are free to the public.

Municipal Grants.—It is very gratifying to state that no less than 59 Institutes have been assisted by municipal grants this year, the total exceeding the government aid given by about \$1,200.

7.—*Expenditure during the Year 1885-6, together with Balance on hand at close of Year.*

For rent, light and heating	\$10,224 70
“ salaries	17,320 09
“ books (not fiction)	18,476 61
“ “ (fiction)	5,399 06
“ magazines, etc	7,297 93
“ evening classes	6,222 06
“ lectures and entertainments	2,293 77
“ miscellaneous	17,971 53
“ balance on hand	7,930 82
Total	\$93,136 58

8.—*Donations of Books, 1885-6.*

21 Institutes received donations of books, value \$521 00

Almonte	\$15 00	Seaforth	\$3 25
Aurora	1 25	St Thomas, F L	3 00
Arnprior	15 00	Strathroy	10 00
Brantford F L	6 00	Toronto, F L	227 50
Essex Centre	12 00	Uxbridge	10 00
Guelph F L	10 00	Weston	60 00
Iroquois	4 00	Warton	1 00
Milton	4 00	Windermere	22 00
Niagara	10 00	Wroxeter	12 00
Penetanguishene	75 00		
Peterboro'	15 00		\$521 00
Scarboro	5 00		

9.—*Assets and Liabilities in 1885-6.*

131 Institutes and public libraries have assets, value \$369,098 84
do do liabilities 95,256 42

10.—*Number of Members in 1885-6.*

Total number of members reported in 131 Institutes, 29,492. Showing an average of 225 members to each Institute, or an increase over previous years of an average of 87 per Institute.

11.—*Number of Volumes in Libraries, and Number of Volumes Issued.*

131 Institutes reported the number of volumes in Libraries, and the number of volumes issued during the year. This is an improvement on preceding reports.

	No. of Volumes in Libraries.	No. of Volumes Issued.
Biography	22,096	21,045
Fiction	69,796	414,935
History	25,827	24,264
Miscellaneous	40,815	62,999
Periodical Literature	14,371	43,306
Poetry and the Drama	8,795	9,052
Religious Literature	8,587	9,210
Science and Art	27,632	25,607
Voyages and Travels	20,687	41,170
Works of Reference	24,715	15,289
Details not given	1,473	6,219
Total number of Volumes	264,794	Total No. issued 679,096

The total amount expended for books in 1885-6 was \$23,875.67.

For details see Tables A and B.

12.—*Reading Rooms in 1885-6.*

79 Institutes reported having Reading Rooms—an increase of 11 over preceding year.

Number of Periodicals

Number of Newspapers

The total amount expended for Reading Rooms in 1885-6 was \$7,297.93.

For details see Tables A and B.

13.—*Evening Classes in 1885-6.*

24 Institutes conducted elementary classes in the following subjects:—Writing, Botany, Elocution, Phonography, Book-keeping, English Grammar, Arithmetic, Physiology, Wood-carving, Canadian History, Composition, and Spelling.

An increase of 6 Institutes ; for details see Table C.

51 Institutes conducted classes in Drawing in the following subjects:—Free Hand Drawing, Practical Geometry, Linear Perspective, Model Drawing, Memory and Black-board Drawing, Architectural Drawing, Mechanical Drawing, Industrial Design, Machine Drawing.

An increase of 8 Institutes ; for details see Table D.

A simultaneous examination was held in Drawing at the Institutes on the first and second days of March, 1886, under the supervision of presiding examiners appointed by the Minister of Education. The papers were returned to this Department for examination, and the results will be seen in Table E.

In addition to the sum of \$100 paid to each Institute for maintenance of Drawing Classes, one dollar was paid for each single certificate taken, or two dollars for two or more certificates. For details see Table E.

The total amount expended in 1885-6 for Evening Classes was \$6,222.06.

Candidates at the examination who were awarded five proficiency certificates received Certificates of Grade B., qualifying them to teach Drawing in Public Schools and Mechanics' Institutes. See Register of Certificates on Art School Report.

TABLE A.—Receipts, Expenditure, Assets and Liabilities of

INSTITUTES.	RECEIPTS DURING THE YEAR.								Rent, Light, and Heating.
	Balance on hand.	Members' Fees.	Legislative Grant.	Municipal Grant.	Fees from Evening Classes.	Lectures and Entertainments.	Other sources.	Total.	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1 Ailsa Craig.....	112 13	65 30	112 00		31 00		5 00	325 43	25 00
2 Almonte.....	13 33	78 50	407 00		58 00	63 10	136 79	756 72	146 52
3 Alton.....	38 36	29 52	150 00		4 81	13 87	39 50	276 06	
4 Arkona.....		79 50	100 00	20 00		75 15	25	274 90	36 50
5 Arnprior.....	29 23	127 55	162 00		23 50	234 00	35 70	611 98	5 67
6 Arthur.....	40 93	64 75	100 00				4 00	209 68	90
7 Aylmer.....	16 14	117 31	308 00	80 00	5 00	22 40	8 25	357 10	92 30
8 Ayer.....	22 54	88 75	150 00			46 20	20 00	327 49	63 94
9 Aurora.....	171 85	129 00	179 00		11 75	14 90	18 50	525 00	23 91
10 Barrie.....	9 99	345 70	411 00	100 00	22 00	178 15	62 35	1129 19	179 20
11 Belleville.....	188 53	368 25	250 00	100 00			422 65	1329 43	459 45
12 Berlin (F.L.).....			380 00	491 18				871 18	57 61
13 Blyth.....	81 69	40 00	193 00		45 00		1 25	360 94	22 08
14 Bolton.....	5 51	67 00	150 00			2 21	6 00	230 72	12 00
15 Bowmanville.....	20 48	63 90	100 00	30 00			95 40	309 78	48 98
16 Bracebridge.....	373 21	48 50				10 10		331 81	
17 Brampton.....	141 60	182 00				24 82	32 50	380 92	17 50
18 Brantford (F.L.).....	92 90	7 00	414 00	1400 00	73 50		252 33	2239 73	216 95
19 Brighton.....	3 61	6 20	120 00				47 50	231 31	46 39
20 Brockville.....	23 47	250 00	378 00	100 00	34 00			785 47	100 00
21 Brussels.....	5 61	41 50	150 00	25 00			45 00	267 11	63 00
22 Caledon.....	112 81	30 60				2 71	29 33	174 85	25 00
23 Caledonia.....	6 75	28 50	100 00			28 50		163 75	3 65
24 Campbellford.....	66 08	95 81	250 00			49 40	23 68	484 97	40 00
25 Carleton Place.....	2 58	127 75	353 00	75 00	37 50	164 16	35 25	795 24	185 70
26 Chatham.....	66 33	349 00	250 00	100 00		15 40	165 47	946 20	180 53
27 Cheltenham.....	1 71	27 59	222 00		22 00		29 08	302 38	2 00
28 Clarkeburg.....	20 73	7 00						27 73	10 00
29 Claude.....	9 07	29 00	168 00		23 00		25 00	254 07	25 00
30 Clifford.....		50 00				60 00		110 00	
31 Clinton.....	13 78	100 00	250 00	100 00	8 00	154 05	103 81	729 64	78 91
32 Colborne.....	5 77	64 50	150 00	50 00		55		270 82	24 00
33 Collingwood.....	91 31	170 00	150 00	50 00				461 31	78 32
34 Columbus.....	20 03	26 50				11 00	28 00	85 53	13 00
35 Deseronto.....		122 00					489 14	611 14	56 28
36 Drayton.....	27 04	86 00	300 00	50 00	25 00	113 95	86 59	688 58	68 28
37 Dundas.....	31 45	167 00	255 00	100 00			13 00	566 45	173 17
38 Dunnville.....	21 14	67 00	50 00				16 11	154 25	62 00
39 Durham.....	3 36	54 00	102 00			85 12	8 00	252 48	19 25
40 Elora.....	6 02	144 38	403 00		35 00	61 21	91 35	740 96	100 00
41 Embro.....	70	93 25	250 00	20 00		13 05	3 58	380 58	55 38
42 Ennotville.....	19 83	19 25	50 00			45 91	20 00	154 99	30
43 Essex Centre.....		294 00						294 00	17 75
44 Exeter.....	122 58	77 75	136 00	25 00		16 55		377 88	28 00
45 Fenelon Falls.....		103 00	200 00	60 00		44 57	54 85	462 42	167 90
46 Fergus.....	36 87	78 25	300 00	75 00	18 00	5 85	10 82	522 79	62 68
47 Forest.....	85 67	58 68		25 00		20 00	290 00	479 35	108 00
48 Galt.....	3 42	430 90	376 00	10 00	64 50	49 16	150 00	1083 98	23 44
49 Garden Island.....		195 00	407 00	178 28			291 65	1071 93	159 30
50 Georgetown.....	17 23	137 25	119 00	40 00		15 00		328 48	73 35
51 Goderich.....	153 47	93 00	420 00	100 00	73 50	108 70	42 08	990 75	127 42
52 Gravenhurst.....	56 31	16 00				16 50	20 24	109 05	16 97
53 Grimsby.....	29 51	74 10	200 00	89 00		61 19	3 57	457 37	46 36
54 Guelph (F. L.).....			451 00	1588 10	70 00		69 25	2178 35	349 91
55 Harriston.....	17 65	123 00				8 33	201 45	350 43	108 83
56 Hanover.....	210 07	26 05						236 12	20 00

Mechanics' Institutes, for the year ending 1st May, 1886.

EXPENDITURE DURING THE YEAR.										ASSETS AND LIABILITIES.	
Salaries.	Books (not fiction.)	Books (fiction.)	Magazines, Newspapers, etc.	Evening Classes.	Lectures and Entertainments.	Miscellaneous.	Balance on hand.	Total.		Assets.	Liabilities.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
1	29 18	79 05	20 00	66 77	159 10	213 31	12 75	92 68	325 43	1598 68	
2	41 00	73 12	29 07	58 86	25 00	60 98	7 74	756 72	750 99		
3		130 00	20 00			20 02	4 42	276 06	695 49		
4	17 00	100 20	9 80	23 41	63 55	36 32		274 90	603 87		
5	44 00	69 94	23 08	65 57	127 10	240 30		611 98	393 00	124 12	
6	28 75	100 00	33 47				46 56	209 68	600 00		
7	60 00	70 18	6 00	49 00	9 65	18 00	29 04	357 10	2714 61		
8	16 50	93 48	28 99	65 74		6 00	14 48	38 36	327 49	1000 00	
9	31 00	37 42	70 00		72 15	46 10	183 88	60 64	525 00	2560 64	
10	212 40	148 75	37 00	82 25	132 00	22 50	226 71	88 38	1129 19	3319 38	76 00
11	315 00	121 95	168 00	128 65			133 08	3 30	1329 43	4133 30	40 00
12	220 50	270 54	18 00	71 60	133 90		99 03		871 18	3163 00	
13	20 00	96 45	16 75		108 00		19 16	78 50	360 94	708 50	
14		133 90	36 97		12 00		18 23	17 62	230 72	741 62	
15	45 00	110 00	30 00					75 80	309 78	1630 00	44 40
16	40 00	139 92	29 00				7 45	124 44	331 81	1229 44	
17	15 00	190 32	34 25	52 90			64 89	6 06	380 92	706 06	
18	450 00	352 89	410 85	126 50	163 16		121 91	397 47	2239 73	5997 47	
19	50 00	51 00	33 93	38 65			2 82	8 52	231 31	1088 52	
20	200 00	155 34	13 55	131 50	100 00	35 00	10 00	40 08	785 47	879 25	
21	20 00	126 13	37 00				16 28	4 70	267 11	1194 70	55 61
22		91 78	20 96				37 11		174 85	811 43	3 98
23		104 80	26 20				23 65	45	163 75	541 69	
24	40 00	13 00	7 96	50 00		60 80	46 66	226 55	484 97	751 55	79 75
25	102 27	81 50	20 00	52 70	108 00	128 65	116 42		795 24	562 50	103 00
26	177 00	185 00	239 75	148 80			15 12		946 20	3223 25	133 97
27	132 70	20 60			122 00		25 08		302 38	436 23	2 59
28		5 85	7 00					4 88	27 73	432 05	10 00
29			9 50		109 00		39 67	70 90	254 07	1260 90	
30		90 00	20 00						110 00	110 00	
31	150 00	121 90	37 26	122 00	24 00	117 57	24 19	53 81	729 64	2465 56	
32		110 00	40 00			13 25	50 10	33 47	270 82	473 47	
33	85 00	176 97	51 00	58 33		10 00	1 69		461 31	3050 00	
34	13 53	21 00	12 00			20 00	6 00		85 53	740 00	
35	21 00	270 32	70 00	48 95		14 00	129 83	76	611 14	440 28	307 03
36		203 10	40 00	39 50	75 00	66 03	196 67		688 58	636 71	37 89
37	50 00	138 50	45 27	73 60			49 35	36 56	566 45	9196 56	
38	13 25	60 07	14 93				4 00		154 25	1015 00	
39	36 55	4 25			171 60			20 83	252 48	3145 83	163 48
40	40 00	154 44	29 74	116 00	135 96	26 50	135 41	3 91	740 96	6597 88	14 55
41		220 28	45 00	54 20			5 25	47	380 58	1412 73	
42	10 00	64 00	10 00			16 50	3 24	50 95	154 99	1515 00	
43	21 00	125 28	22 50	21 00			67 51	18 96	294 00	235 30	
44	15 00	207 25	25 95	18 50		38 30	14 58	30 30	377 88	1342 50	
45	15 00	48 89	20 95	73 20			89 56	48 92	462 42	929 92	
46	78 10	173 55	40 00	47 50	50 00	16 00	32 44	22 52	522 79	3652 59	
47	25 00	137 97	40 00	48 00			54 70	65 68	479 35	1392 68	
48	210 00	209 80	60 00	135 40	167 16	61 10	216 71	37	1083 98	6130 37	
49	90 00	236 77	33 03	131 46	337 62	15 35	68 40		1071 93	2500 00	
50	40 00	12 85		31 50	108 30	12 00	33 56	16 92	328 48	886 92	
51	120 00	275 25	20 00	101 20	155 50	43 87	32 49	115 02	990 75	2072 60	
52	28 00	18 65	15 45	19 18		8 55	2 25		109 05	165 67	5 24
53	100 00	163 80	60 00	26 20		8 55	21 60	30 86	457 37	3212 70	
54	601 92	512 68	89 22	128 40	170 85		327 37		2173 35	4190 00	
55		97 04	9 74	42 35		1 55	90 92		350 43	1130 00	106 17
56		49 50	14 30				5 95	146 37	236 12	768 40	20 00

TABLE A.—Receipts, Expenditure, Assets

INSTITUTES.	RECEIPTS DURING THE YEAR.									Rent, Light, and Heating.
	Balance on hand.	Members' Fees.	Legislative Grant.	Municipal Grant.	Fees from Evening Classes.	Lectures and Entertainments.	Other sources.	Total.		
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.		
57 Hespeler	236 26	45 55			11 80	27 10	49 50	370 21	38 40	
58 Ingersoll	21 83	95 00	150 00				28 69	295 52	71 36	
59 Iroquois		68 00				161 50	20 61	238 11		
60 Kemptville	37	71 50	257 00		23 00	24 03	33 95	406 85		
61 Kincardine	9 62	114 91	200 00	50 00		90 10		464 63	58 43	
62 Kingston	187 75	725 00	300 00		75 00	10 00	95 15	1392 90	297 59	
63 Lindsay	64 47	165 20	401 00	50 00	12 50		87 91	781 08	153 64	
64 London		497 00	400 00	200 00			2177 12	3274 12	185 83	
65 Lucan	33 57	36 40	70 00					139 97		
66 Meaford	19 93	51 75	150 00	25 00		27 60	50 00	324 28	73 27	
67 Merrickville	59 43	27 00	150 00			10 00		246 43		
68 Midland	10 06	97 15	358 00	20 00	25 00	234 80	22 05	767 06	142 29	
69 Milton	27 46	134 50	320 00			14 69	25 66	522 22		
70 Mitchell	48 23	74 36	133 00	100 00	39 00	123 97	9 72	528 28	28 81	
71 Mono Road		119 75				15 00	40 29	175 04		
72 Mount Forest	42 90	51 65	309 00		16 00	19 90	13 00	452 45	46 50	
73 Napanee	170 21	215 00	352 00				159 00	896 21	100 00	
74 New Hamburg	39	59 00	150 00			7 50	8 00	224 89	51 81	
75 Newmarket	16 34	36 00	150 00			44 55	1 55	248 44	20 00	
76 Niagara	8 44	57 27	100 00				44 24	209 95	43 75	
77 Niagara Falls	88 57	46 00	250 00	300 00				684 57	64 56	
78 Norwich	5 47	76 02	75 00	25 00		19 60	38 44	239 53	33 15	
79 Norwood	180 57	27 00						207 57	40 00	
80 Oakville	17 04	38 65	150 00				12 50	218 19	2 00	
81 Orangeville	8 25	104 10	272 00		24 50	26 32		435 17	60 00	
82 Orillia	69 67	223 00	424 00	50 00	24 50	26 00	43 40	860 57	141 10	
83 Owen Sound	35 79	344 33	250 00			15 92	34 50	684 54	9 50	
84 Paisley		28 50	150 00		24 50	39 65	45 55	288 20		
85 Paris	199 93	301 00	371 00	100 00		53 13	93 02	1118 08	55 67	
86 Parkdale	6 98	90 25	200 00	500 00		2 80		800 03	128 38	
87 Parkhill	4 22	39 00	83 00		48 00		42 00	216 22	50 00	
88 Penetanguishene		54 00	358 00	50 00	11 50	106 25		579 75	80 00	
89 Perth	2 14	164 00	366 00	100 00		102 50	4 25	738 89	136 73	
90 Peterborough	166 26	284 19	351 00	100 00	7 50		61 23	970 18	149 30	
91 Point Edward	40 79	96 25	250 00			9 50	124 52	521 06	89 47	
92 Port Elgin	19 11	32 25					5 00	56 36	11 25	
93 Port Hope	65 83	323 50	250 00				120 70	760 09	120 50	
94 Port Perry		32 00	119 00					151 00	24 00	
95 Prescott	59 60	124 50	298 00		27 00		46 00	555 10	10 35	
96 Preston	3 27	80 00	307 00	200 00				590 27	60 00	
97 Renfrew	44 55	62 00		25 00		12 13	10 78	154 46	9 50	
98 Richmond Hill	3 70	37 25	43 00				7 23	91 18		
99 Ridgetown	297 99	137 00	250 00			6 25	2 50	693 74	56 04	
100 Scarboro	43 43	59 67	100 00				6 60	209 70	1 00	
101 Schomberg		19 40	90 00				2 24	111 64		
102 Seaforth	196 21	367 50	496 00	100 00	112 00	198 47	71 30	1541 48	144 38	
103 Simcoe (F.L.)	71 13		300 00	450 00	43 00		158 77	1022 90	105 62	
104 Smiths Falls	4 30	207 00	360 00	100 00	11 00		7 39	689 69	101 65	
105 Stouffville	14 08	96 50	258 00		15 00	15 79	50	399 87	26 25	
106 Stratford		32 75	210 00					242 75	3 80	
107 Strathroy	112 12	225 74	376 00	25 00	13 00	104 15	95 63	951 64	80 94	
108 Streetsville	11 58	60 00	232 00		25 00	16 75		345 33	47 20	
109 St. Catharines	96 17	282 75	363 00	200 00	48 00		22 85	962 77	143 70	
110 St. George	1 71	60 79	364 00	40 00		89 83	70 00	626 33	73 43	
111 St. Marys		148 60	368 00	150 00	31 00		430 69	1128 29	140 00	
112 St. Thomas (F.L.)	1253 92		250 00				75 80	1579 72	125 00	

and Liabilities, etc.—*Continued.*

EXPENDITURE DURING THE YEAR.										ASSETS AND LIABILITIES.	
Salaries.	Books (not fiction).	Books (fiction).	Magazines, News-papers, etc.	Evening Classes.	Lectures and Entertainments.	Miscellaneous.	Balance on hand.	Total.		Assets.	Liabilities.
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
57	41 67			30 85	131 00	8 33	25 63	94 33	370 21	2200 00	
58	50 00	34 35	17 86	20 00			31 55	70 40	295 52	2119 25	100 24
59	10 00	94 38	48 59	31 20		25 00	25 51	3 43	238 11	164 40	20 00
60	30 00	163 37	71 91		118 05	13 75	5 55	7 22	409 85	777 22	
61	91 36	68 12	12 00	161 73		43 55	1 87	27 57	464 63	1679 82	108 39
62	372 50	125 00	150 00	150 00	118 00	20 00	128 43	31 38	1392 90	3309 63	135 00
63	90 00	157 22	40 50	201 85	80 00		57 87		781 08	1886 24	150 00
64	348 55	136 35	25 00	101 00			2477 39		3274 12	27300 00	19073 34
65	15 00	86 00	21 14				4 05	13 78	139 97	593 78	
66		99 18	2 94				78 53	70 36	324 28	1610 36	
67		76 89	42 00		15 00	6 82	105 72	246 43	506 72		
68	111 00	125 80	33 09	52 50	145 75	113 85	28 94	13 84	767 06	438 84	52 50
69	40 00	146 49	24 80	30 00	118 00		32 75	130 18	522 22	5308 18	
70	106 00	187 69		65 22	100 00	50 00	29 75	10 81	528 28	2860 81	71 01
71		88 08	55 72		20 83	10 37	4	175 04	149 84	18 00	
72	10 00	155 67	25 20	52 15	69 04	21 00	41 16	31 73	452 45	1320 00	
73	37 49	173 31	53 31	84 83	114 00		74 86	258 41	896 21	1358 41	50 00
74	10 00	60 00	40 00	12 85		14 00	8 09	28 14	224 89	643 83	
75	15 00				98 00	28 00	22 90	64 54	248 44	814 54	85 47
76	23 00	40 42	10 85	62 71			29 22		209 95	2050 00	40 74
77	100 00	228 98	70 00	50 65			50 58	119 80	684 57	3496 67	
78	30 00	76 26	44 32	12 61			28 18	15 01	239 53	1363 01	
79	8 00	74 36	20 00	35 37				29 84	207 57	1089 84	7 00
80		164 29	36 20				11 55	4 15	1218 19	1019 15	4 00
81		116 66	50 81		100 25	7 00	100 25		435 17	1478 91	110 07
82	92 00	176 01	87 58	81 21	141 63		98 03	43 03	860 57	2343 03	
83	50 00	87 00	30 50	50 00		16 00	212 25	225 29	680 54	2625 29	200 00
84	25 00	50 04	15 00		58 05	6 50	19 13	114 48	288 20	1354 48	
85	160 00	191 15	121 60	125 92	90 74		120 30	252 70	1118 08	8552 70	
86	190 00	227 65	90 69	56 00		5 00	25 30	77 01	800 03	1632 01	
87			6 00		75 00		75 15	10 07	216 22	1091 07	
88	60 00	123 00	27 06	83 00	15 00	82 85	103 44	5 46	579 75	735 46	198 50
89	92 50	178 36	50 00	55 85	103 80	79 10	28 64	13 92	738 89	1682 94	50 00
90	156 00	259 85	38 85	136 46	50 00		70 74	108 98	970 18	5910 72	97 50
91	76 66	260 31	50 00	42 76			1 50	36	521 06	2050 36	
92	10 00						28 50	6 61	56 36	806 61	
93	216 00	120 07	70 98	138 38			80 75	13 41	760 09	2174 41	
94					109 00		11 44	6 56	151 00	1115 97	66 66
95	48 00	227 38	40 00		177 96		15 02	36 39	555 10	2359 98	
96	60 00	142 18	29 91	93 57	112 50		55 88	36 23	590 27	7628 19	
97	18 00	45 98	13 25			15 30	6 53	45 90	154 46	1882 50	141 65
98	16 00				35 10		4 57	35 51	91 18	1435 51	15 00
99	56 25	300 00	44 20	79 97			76 67	80 61	693 74	2155 61	
100	2 00	121 20	41 78				32 00	11 72	209 70	1331 72	
101	5 00	35 00			60 60		11 04		111 64	475 00	2 24
102	300 00	120 09	31 89	103 05	162 00	154 64	194 67	330 76	1541 48	4123 89	750 00
103	137 50	162 68	42 93	113 05	93 00		367 78	10 34	1022 90	8667 84	1300 00
104	112 00	194 22	33 71	87 60	104 15		54 90	1 46	689 69	3860 46	
105	23 85	132 96	32 00	36 07	111 63	7 05	2 13	27 93	399 87	1577 93	26 20
106	14 75	42 28		26 15	36 00		118 89	88	242 75	3105 88	
107	100 00	245 09	93 17	160 60	97 00	16 00	5 93	206 91	951 64	3756 91	
108	30 00	62 47		26 85	132 00	22 00	6 80	18 01	345 33	2274 01	
109	225 91	243 92	30 00	85 00	82 50		108 40	43 34	962 77	3243 34	
110	60 00	182 00	78 95	42 29	71 44	27 95	22 72	67 55	626 33	2180 44	55 00
111	120 00	240 00	60 00	50 75	102 00		415 54		1128 29	3610 00	384 69
112	360 00	10 00		106 45			593 36	384 91	1579 72	1816 44	

TABLE A.—Receipts, Expenditure, Assets.

INSTITUTES.	RECEIPTS DURING THE YEAR.								Rent, Light, and Heating.
	Balance on hand.	Members' Fees.	Legislative Grant.	Municipal Grant.	Fees from Evening Classes.	Lectures and Entertainments.	Other sources.	Total.	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
113 Teeswater	9 41	44 00	100 00	15 00		39 05		207 46	15 00
114 Thorndale	2 95	26 00				16 50	4 20	49 65	
115 Toronto (F.L.)	3182 69		250 00	17226 00			3297 10	23955 79	1431 61
116 Trenton		321 40		250 00				571 40	15 52
117 Tilsonburg	23	60 50					70	64 43	23 59
118 Uxbridge	1 33	165 65	250 00		45 50	198 63	222 75	883 86	334 38
119 Walkerton	66 93	12 75	16 00					95 68	36 00
120 Wardsville	8 48	13 00						21 48	
121 Waterdown	7 92	7 00	80 00					94 92	
122 Waterloo	54 25	138 50	250 00	100 00		7 60		550 35	12 50
123 Welland	22 94	67 25	250 00	200 00			82 00	622 19	86 10
124 Weston	27 35	61 60	250 00	80 00		13 80	32 15	464 90	92 00
125 Whitby	34 25	93 50	310 00		40 50			478 25	31 43
126 Wiarton		20 00						20 00	20 00
127 Windermere	100 00	35 25		10 00		40 50	50 95	236 70	
128 Wingham	19 47	141 50	250 00	100 00			12 00	522 97	101 25
129 Woolbridge	24 00	45 50				2 25	35 00	106 75	3 60
130 Woodstock	6	406 25	379 00	100 00	24 00		146 33	1055 64	237 00
131 Wroxeter	186 83	31 05	104 00					321 88	20 00
Total	10381 17	14503 92	2494 00	26122 56	1462 86	3799 78	11917 28	93136 57	10224 70

and Liabilities, etc.—*Continued*

EXPENDITURE DURING THE YEAR.										ASSETS AND LIABILITIES.	
Salaries.	Books (not fiction.)	Books (fiction.)	Magazines, News-papers, etc.	Evening Classes.	Lectures and Entertainments.	Miscellaneous.	Balance on hand.	Total.	Assets.	Liabilities.	
\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	
113	10 00	119 43	27 72				35 31	207 46	572 58		
114	13 30	15 00	4 60		7 50	7 00	2 25	49 65	188 25	56 20	
115	8274 21	2576 08	600 00	1261 00		7826 16	1986 73	23955 79	85372 83	69327 02	
116	20 00	227 86	63 67	73 89		148 96	21 50	571 40	461 99		
117	34 34			3 50				61 43	300 00	26 00	
118	60 10	153 19	19 60	97 75	88 10	100 15	27 01	3 58	883 86	5103 58	630 00
119		53 00						6 68	95 68	1031 68	
120	20 50							98	21 48	1337 77	
121				26 10				68 82	94 92	1568 82	
122	75 00	273 51	56 96	74 40		13 55	32 48	11 95	550 35	2862 89	
123	81 00	279 30	73 69	46 88			55 22		622 19	2410 66	63 55
124	40 00	125 78	30 00	50 51		24 00	102 61		464 90	426 00	7 15
125	52 00	79 00	1 65	17 55	141 25		13 30	142 07	478 25	1751 07	
126									20 00	300 00	42 00
127		150 00	35 00	23 95		7 50	20 25		236 70	427 25	100 95
128	52 00	131 73	27 35	95 55			24 60	90 49	522 97	2170 49	
129	11 00	42 00	8 00	1 00		6 75	9 48	24 92	106 75	1083 42	258 25
130	144 00	185 85	49 10	163 75	119 10		156 84		1055 64	3900 00	104 33
131	5 00	200 00	51 09				15 00	30 79	321 88	1393 62	
17320 09	18476 61	5399 06	7297 93	6222 06	2293 77	17971 53	7930 82	93136 57	369098 84	95256 43	

TABLE B.—Membership,

MECHANICS' INSTITUTE.	Number of Members.	NUMBER OF VOLUMES IN LIBRARY.										
		Biography.	Fiction.	History.	Miscellaneous.	Periodical Literature.	Poetry and the Drama.	Religious Literature.	Science and Art.	Voyages and Tra.els.	Works of Reference.	Total number of Volumes.
1 Ailsa Craig	73	197	256	148	469	47	50	138	193	111	25	1634
2 Almonte	100	74	143	175	108	87	21	116	115	57	43	939
3 Alton	28	42	170	100	210	23	23	30	34	35	35	644
4 Arkona	104	15	124	34	133	20	26	28	59	27	32	498
5 Arnprior	115	12	146	45	78	200	26	2	32	18	6	565
6 Arthur	65	62	225	76	232	27	27	65	36	83	14	820
7 Aylmer	198	162	365	174	395	34	79	196	115	106	106	1626
8 Ayr	125	327	767	323	622	85	86	116	235	267	40	2868
9 Aurora	129	80	125	80	160	28	28	75	60	15	15	623
10 Barrie	350	343	904	355	285	125	93	77	291	388	53	2914
11 Belleville	186	80	800	203	350	150	60	50	90	105	154	2042
12 Berlin (P. L.)	203	293	243	579	196	37	73	240	161	230	235	2255
13 Blyth	40	109	156	112	279	66	59	16	76	72	18	963
14 Bolton	67	53	170	76	52	15	36	46	40	33	39	560
15 Bowmanville	76	90	503	133	182	85	31	257	97	163	27	1568
16 Bracebridge	56	69	283	92	177	63	51	88	64	64	887	887
17 Brantford	184	112	137	156	294	5	39	34	174	193	67	1211
18 Brantford (P.L.)	1963	539	1950	497	712	324	167	181	598	343	131	5442
19 Brighton	103	100	323	146	171	55	38	35	136	110	39	1153
20 Brockville	250	154	456	105	143	69	43	20	78	40	34	1142
21 Brussels	74	187	108	117	162	27	64	38	179	81	40	1003
22 Caledon	35	48	184	76	136	9	20	30	43	13	5	559
23 Caledonia	36	42	262	47	232	73	14	42	36	34	5	787
24 Campbellford	102	148	337	272	418	52	47	6	285	40	40	1645
25 Carleton Place	125	20	179	29	15	17	1	91	73	16	441	441
26 Chatham	302	245	789	344	310	65	83	40	201	104	54	2235
27 Cheltenham	35	68	71	66	125	25	20	24	48	28	475	475
28 Clarksburg	15	32	136	29	51	16	29	34	25	19	371	371
29 Claude	56	89	144	109	215	21	23	21	113	78	16	829
30 Clifford	50	25	160	5	100	25	50	40	25	5	435	435
31 Clinton	183	170	429	243	201	183	67	43	184	130	54	1704
32 Colborne	57	46	675	72	200	22	58	56	51	180	1180	1180
33 Collingwood	115	375	544	444	483	286	107	106	474	493	168	3480
34 Columbus	15											630
35 Deseronto	122	18	120	59	71	30	30	18	14	32	362	362
36 Drayton	107	56	221	48	109	24	29	23	61	40	19	630
37 Dundas	128	692	930	622	1035	24	29	1271	944	230	5714	5714
38 Dunville	67	137	441	168	333	24	18	8	74	105	53	1361
39 Durham	106	237	528	158	287	45	45	223	126	45	1649	1649
40 Elora	153	569	1247	558	973	506	174	155	1236	647	189	6254
41 Embro	95	214	466	372	276	6	54	79	51	39	1457	1457
42 Ennottville	50	124	206	198	136	125	42	130	158	68	51	1148
43 Essex Centre	124	43	34	18	20	1	26	46	3	9	200	200
44 Exeter	61	109	481	116	235	37	77	84	132	137	77	1485
45 Fenton Falls	118	37	486	187	119	28	44	127	104	87	1169	1169
46 Fergus	126	240	330	434	326	112	92	200	388	232	78	2432
47 Forest	90	140	247	89	166	36	77	159	40	37	991	991
48 Galt	398	298	775	353	620	538	149	164	479	300	233	3909
49 Garden Island	139	123	345	420	254	19	129	8	875	435	92	2700

Libraries and Reading Rooms, 1885-6.

NUMBER OF VOLUMES ISSUED.											READING ROOM.	
Biography.	Fiction.	History.	Miscellaneous.	Periodical Literature.	Poetry and the Drama.	Religious Literature.	Science and Art.	Voyages and Travels.	Works of Reference.	Total Number of Volumes.	Number of Periodicals.	Number of Newspapers.
1	52	675	55	410	165	30	64	75	135	10	1671	...
2	12	69	25	18	7	6	1	12	7	...	157	8
3	18	519	27	108	...	11	...	33	29	2	747	23
4	18	243	65	160	38	40	...	81	49	...	694	8
5	26	477	34	86	221	33	1	29	107	...	1014	15
6	...	...	...	...	...	...	...	...	...	...	1217	...
7	106	1690	83	314	96	65	...	113	270	30	2767	6
8	201	2212	111	395	408	53	58	80	347	8	4305	6
9	15	500	25	35	...	5	...	20	25	...	625	15
10	261	3967	406	259	392	69	325	279	1821	...	7779	7
11	240	1000	575	800	100	100	81	175	317	250	3638	27
12	66	3446	221	1380	72	53	68	175	567	152	6200	27
13	18	53	28	325	3	10	12	32	71	3	555	...
14	20	574	27	5	326	6	38	8	36	20	1060	3
15	37	932	41	55	15	19	297	26	143	3	1568	...
16	29	460	19	20	...	9	13	17	51	...	618	...
17	22	560	50	52	...	2	1	15	149	5	856	8
18	1140	37963	1333	1662	2062	439	459	1139	1494	...	47691	22
19	24	1288	47	118	54	29	47	38	122	12	1779	10
20	150	2680	200	520	200	100	100	150	200	100	4300	20
21	55	321	39	63	17	72	3	12	84	7	673	...
22	21	570	58	133	150	14	12	75	42	...	1075	1
23	17	391	32	207	30	10	12	17	29	...	745	...
24	41	1069	79	75	813	31	...	27	8	...	2143	19
25	21	567	50	38	...	29	...	60	72	...	837	16
26	159	5369	286	200	...	60	35	245	280	...	6634	13
27	26	55	34	49	20	14	12	33	48	...	291	...
28	17	109	10	26	...	11	...	17	10	...	200	...
29	19	130	16	36	30	5	8	14	16	2	276	...
30	...	...	...	...	...	...	...	...	...	...	...	...
31	488	1060	424	1040	1802	194	134	302	635	104	6173	10
32	38	1611	41	265	18	39	...	58	81	...	2151	...
33	239	783	426	639	208	117	138	420	672	...	3642	12
34	...	...	...	...	...	...	...	...	...	...	100	...
35	13	484	21	306	...	23	...	28	23	1	899	48
36	55	757	29	61	123	13	24	35	106	...	1203	10
37	153	1106	112	127	...	...	...	163	588	...	2249	8
38	173	1421	473	538	70	69	13	107	586	8	3458	...
39	267	2019	153	279	...	94	...	213	671	33	3729	...
40	109	2083	117	184	680	60	20	155	265	15	3688	13
41	480	775	205	185	28	65	...	80	47	...	1865	10
42	13	410	15	23	92	8	23	8	20	1	613	...
43	...	...	...	...	...	...	...	...	...	...	...	...
44	79	692	69	221	52	12	63	46	135	32	1401	4
45	62	1422	158	94	...	16	27	108	371	...	2258	22
46	116	1078	173	188	75	54	56	123	200	12	2075	18
47	...	...	...	...	...	...	...	...	...	...	...	7
48	296	5311	261	1631	1174	204	141	386	779	12	10183	8
49	244	828	247	63	28	56	6	162	198	8	1840	16

TABLE B.—Membership,

MECHANICS' INSTITUTES.	Number of Members.	NUMBER OF VOLUMES IN LIBRARY.										
		Biography.	Fiction.	History.	Miscellaneous.	Periodical Literature.	Poetry and the Drama.	Religious Literature.	Science and Art.	Voyages and Travels.	Works of Reference.	Total Number of Volumes.
50 Georgetown.....	135	70	232	106	277	.....	25	34	189	41	35	1009
51 Goderich.....	105	234	437	254	323	81	89	111	271	188	61	2049
52 Gravenhurst.....	16	19	71	16	28	203	6	18	18	14	8	401
53 Grimsby.....	103	76	1543	141	644	590	39	37	160	201	84	3515
54 Guelph (P.L.).....	884	436	1045	419	442	427	104	201	468	414	210	4166
55 Hanover.....	39	47	117	111	74	7	24	22	41	67	10	520
56 Harriston.....	100	123	500	155	316	300	85	164	368	168	40	2219
57 Hespeler.....	85	191	331	163	329	19	73	.....	206	101	79	1492
58 Ingersol.....	123	146	496	152	309	360	48	.....	66	171	16	1764
59 Iroquois.....	66	2	61	41	37	36	9	1	18	2	2	209
60 Kemptville.....	70	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	843
61 Kincardine.....	164	143	481	149	314	390	86	89	187	107	106	2052
62 Kingston.....	346	360	1466	300	190	740	75	174	385	350	195	4235
63 Lindsay.....	114	76	698	182	191	.....	31	.....	73	44	53	1348
64 London.....	364	245	933	267	763	403	110	165	276	174	157	3493
65 Lucan.....	60	95	140	110	115	10	36	40	51	59	24	680
66 Meaford.....	102	95	318	110	180	2	48	.....	74	73	40	940
67 Merrickville.....	96	100	130	85	260	61	32	54	63	56	21	862
68 Midland.....	100	48	147	39	88	5	27	57	63	38	16	528
69 Milton.....	111	268	565	409	594	430	106	11	509	295	54	3241
70 Mitchell.....	187	131	366	247	498	179	30	47	49	191	118	1856
71 Mono Road.....	73	30	78	16	32	.....	2	2	4	22	1	187
72 Mount Forest.....	76	122	224	151	189	.....	45	45	98	58	20	962
73 Napanee.....	215	155	425	189	161	.....	30	.....	145	188	.....	1293
74 New Hamburg.....	70	51	231	39	196	.....	21	.....	19	16	11	584
75 Newmarket.....	50	63	270	96	194	21	33	23	54	123	14	891
76 Niagara.....	54	361	542	456	319	15	172	.....	297	275	40	2477
77 Niagara Falls.....	184	241	806	305	428	.....	113	.....	349	182	45	2469
78 Norwich.....	97	92	484	100	219	66	34	106	61	86	40	1288
79 Norwood.....	57	60	300	50	250	10	22	100	80	68	30	970
80 Oakville.....	62	155	144	157	259	16	63	135	122	117	35	1203
81 Orangeville.....	122	104	575	124	243	.....	36	48	81	69	30	1310
82 Orillia.....	229	142	534	174	260	20	69	27	269	226	29	1750
83 Owen Sound.....	193	147	643	232	272	28	61	41	174	140	38	1776
84 Paisley.....	114	150	250	200	130	.....	50	60	280	80	.....	1200
85 Paris.....	223	410	769	526	517	311	216	294	465	358	261	4127
86 Parkdale.....	103	52	56	631	26	61	68	38	14	263	63	1272
87 Parkhill.....	74	82	125	174	70	89	43	71	175	69	30	928
88 Penetanguishene.....	155	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
89 Perth.....	163	200	459	245	600	37	68	.....	150	203	25	1987
90 Peterborough.....	281	426	734	322	2207	117	123	201	484	358	161	5133
91 Point Edward.....	111	142	462	200	270	.....	45	15	213	143	21	1511
92 Port Elgin.....	24	202	224	169	362	15	70	52	198	152	44	1488
93 Port Hope.....	162	253	886	187	268	5	37	9	176	195	45	2061
94 Port Perry.....	53	159	213	14	147	45	55	71	146	35	28	913
95 Prescott.....	130	251	486	184	337	.....	77	53	142	272	28	1830

Libraries and Reading Rooms, 1885-6.

NUMBER OF VOLUMES ISSUED.											READING ROOM.	
Biography.	Fiction.	History.	Miscellaneous.	Periodical Literature.	Poetry and the Drama.	Religious Literature.	Science and Art.	Voyages and Travels.	Works of Reference.	Total Number of Volumes.	Number of Periodicals.	Number of Newspapers.
50	24	788	95	336	15	16	84	68	2	1428	2	9
51	77	1149	78	147	52	23	82	274	.....	2040	19	18
52	14	91	5	3	5	3	1	6	9	187	5	11
53	161	671	187	674	56	56	30	444	345	2671	9	.....
54	838	16152	783	849	2397	229	368	638	2565	27228	14	23
55	28	124	61	24	22	5	6	23	60	354	.....	.....
56	110	1476	250	1228	94	25	85	238	832	4338	4	7
57	152	635	80	742	1114	60	.....	192	175	3150	12	3
58	74	1746	163	284	1194	19	.....	77	165	3722	9	.....
59	6	263	24	102	45	9	.....	27	8	484	.....	.....
60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	106	1781	136	401	2442	61	25	108	168	5257	21	12
62	90	5994	192	320	3894	45	54	70	325	11060	27	16
63	117	1615	165	159	.....	16	.....	89	327	2488	14	15
64	92	2749	130	345	343	56	24	131	379	4249	18	31
65	110	210	100	50	5	40	152	30	100	812	.....	.....
66	16	918	72	36	100	11	.....	20	47	1225	.....	.....
67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	49	709	73	76	19	21	120	27	124	1218	7	8
69	70	1359	107	81	604	26	5	61	235	2608	1	9
70	53	1332	136	725	131	35	35	90	161	2698	11	10
71	46	253	9	66	.....	2	.....	6	40	424	.....	.....
72	55	423	56	105	.....	20	18	80	47	806	1	14
73	289	1890	.....	210	.....	199	.....	81	671	3340	8	13
74	14	453	35	206	24	6	.....	32	1	771	.....	4
75	18	623	50	107	37	4	22	28	183	1076	.....	.....
76	130	500	146	260	50	124	.....	19	250	1489	15	4
77	100	1883	160	190	.....	35	.....	65	160	2593	8	4
78	38	1294	52	72	122	12	17	17	89	1713	.....	.....
79	24	668	12	45	.....	10	30	12	73	884	8	2
80	25	171	35	37	.....	21	12	11	44	369	.....	.....
81	83	1009	59	172	.....	5	21	25	46	1405	.....	.....
82	110	2236	225	225	55	66	33	187	1204	4343	13	11
83	.....	.....	.....	.....	.....	.....	.....	.....	.....	4542	10	23
84	300	700	400	168	.....	200	200	300	.....	2268	.....	.....
85	140	3948	278	309	588	87	150	192	260	5952	18	27
86	171	1498	233	420	424	261	125	155	314	3692	6	9
87	28	487	69	138	20	22	18	73	45	880	.....	.....
88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
89	136	2326	397	1299	138	72	.....	110	833	5326	10	10
90	153	2801	186	3001	193	83	117	264	290	7088	27	16
91	19	1006	55	115	.....	27	8	47	136	1414	4	9
92	12	30	5	20	.....	2	2	4	23	96	.....	.....
93	160	3406	129	163	3	16	3	59	111	4050	24	13
94	54	382	.....	61	13	5	8	39	10	572	.....	.....
95	30	1235	42	450	.....	20	14	25	510	2325	.....	.....

TABLE B.—Membership,

MECHANICS' INSTITUTES.	Number of Members.	NUMBER OF VOLUMES IN LIBRARY.										
		Biography.	Fiction.	History.	Miscellaneous.	Periodical Literature.	Poetry and the Drama.	Religious Literature.	Science and Art.	Voyages and Travels.	Works of Reference.	Total Number of Volumes.
96 Preston.....	108	448	412	411	.....	140	776	.....	1070	569	107	3933
97 Renfrew.....	62	162	472	205	291	180	65	.....	192	83	23	16
98 Richmond Hill.....	40	66	171	97	417	192	35	12	49	31	55	1125
99 Ridgetown.....	114	85	730	180	391	625	48	37	194	78	32	2400
100 Scarboro'.....	56	226	394	240	231	95	54	323	205	217	4	689
101 Schomberg.....	35	25	68	38	30	.....	22	67	24	41	1	326
102 Seaforth.....	368	298	846	371	211	237	66	103	341	73	39	2880
103 Simcoe (P.L.).....	.....	275	1013	335	314	118	118	95	258	266	30	2822
104 Smith's Falls.....	215	248	604	243	421	161	65	151	678	41	72	2984
105 Stouffville.....	102	81	279	88	248	14	39	80	186	96	55	1166
106 Stratford.....	127	195	1235	299	920	360	110	45	296	285	40	3775
107 Strathroy.....	200	175	866	340	310	175	78	85	238	177	80	2524
108 Streetsville.....	102	220	557	232	148	26	216	80	269	152	54	1954
109 St. Catharines.....	314	543	1487	541	579	353	168	254	534	599	88	5133
110 St. George.....	63	180	724	203	150	53	38	66	107	153	47	1671
111 St. Mary's.....	165	430	700	520	1200	160	200	309	400	390	30	4439
112 St. Thomas (P.L.)....	1100	170	938	243	576	187	54	89	259	140	71	2677
113 Teeswater.....	50	96	216	78	79	5	20	17	47	71	.....	629
114 Thorndale.....	50	30	126	31	65	.....	14	28	15	12	.....	321
115 Toronto (P.L.).....	11844	1791	11453	1368	2715	1607	534	709	2085	517	17507	41286
116 Trenton.....	170	31	132	40	48	.....	29	.....	53	23	11	367
117 Uxbridge.....	176	390	1410	296	300	139	73	152	425	340	150	3655
118 Walkerton.....	17	44	344	86	286	.....	27	.....	92	66	.....	945
119 Wardsville.....	13	150	207	237	418	.....	136	.....	177	155	100	1580
120 Waterdown.....	20	75	75	300	300	120	110	75	120	100	100	1375
121 Waterloo.....	139	123	909	252	1160	322	184	79	195	196	53	3483
122 Welland.....	284	214	842	173	237	29	58	62	318	111	26	2070
123 Weston.....	104	26	109	57	57	.....	6	44	61	26	24	410
124 Whitby.....	107	114	640	189	197	68	23	.....	169	209	28	1637
125 Warton.....	30	25	135	80	84	2	16	16	19	9	4	390
126 Windermere.....	53	30	97	46	23	40	5	37	14	20	.....	312
127 Wingham.....	126	201	504	162	214	67	80	.....	215	281	35	1759
128 Woodbridge.....	50	32	108	69	97	.....	21	11	41	32	23	433
129 Woodstock.....	299	400	1336	350	410	58	81	175	354	379	209	3753
130 Wroxeter.....	55	192	199	234	221	61	46	42	132	77	44	1248
Total.....	29492	22096	69796	25827	40615	14371	8795	8587	27632	20687	34715	264794

Libraries and Reading Rooms, 1885-6.

NUMBER OF VOLUMES ISSUED.											READING ROOM.	
Biography.	Fiction.	History.	Miscellaneous.	Periodical Literature.	Poetry and the Drama.	Religious Literature.	Science and Art.	Voyages and Travels.	Works of Reference.	Total Number of Volumes.	Number of Periodicals.	Number of Newspapers.
96 146	1022	143	.....	218	250	.....	230	429	2	2440	23	13
97 26	1421	63	102	190	15	.....	29	76	1	1923	.....	.....
98 14	105	24	160	157	4	7	9	14	3	497	.....	.....
99 91	1982	160	116	487	54	.....	303	487	21	3701	.....	.....
100 80	792	75	193	380	4	149	80	114	.....	1867	.....	.....
101	.....	.....	.....	.....	.....	.....	.....	.....	.....	446	.....	.....
102 972	6130	1316	935	863	411	440	866	1500	.....	13433	12	18
103 162	6178	197	275	83	134	117	248	636	.....	8030	14	11
104 363	1813	311	747	721	69	64	723	283	.....	5094	16	18
105 25	496	20	121	.....	14	22	53	58	.....	809	9	6
106 150	2500	250	850	500	120	30	230	250	25	4905	.....	.....
107 239	5295	521	289	607	161	78	209	672	23	8094	18	11
108 69	956	53	85	.....	63	28	49	85	.....	1388	5	4
109 687	3487	435	450	1343	144	894	282	988	.....	8710	8	7
110 72	628	116	110	75	40	110	133	230	14	1528	8	8
111 100	3200	250	1000	75	173	138	400	450	.....	5786	5	10
112 486	11295	507	1604	405	124	165	265	335	.....	15186	36	30
113 90	265	62	66	40	27	12	18	105	.....	685	.....	.....
114 14	173	17	23	.....	2	9	6	10	.....	254	.....	.....
115 6264	187025	6204	31740	11521	2341	2499	10908	8228	11201	277931	196	208
116	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	24
117 104	2297	97	63	203	37	76	97	211	205	3390	14	13
118 5	287	17	132	.....	6	.....	20	56	.....	523	.....	.....
119 80	40	99	213	.....	45	.....	15	83	.....	575	.....	.....
120 16	588	23	110	20	6	19	13	19	2	816	.....	.....
121 84	2312	255	1061	656	158	25	88	534	12	5185	20	2
122 106	3463	91	48	20	47	26	127	49	4	3981	7	14
123	.....	.....	.....	.....	.....	.....	.....	.....	.....	814	10	6
124 51	1861	147	209	507	18	.....	124	205	40	3162	.....	.....
125	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
126 90	200	80	50	.....	12	100	45	50	.....	627	6	2
127 75	571	55	28	68	23	.....	51	292	.....	1163	12	28
128 15	114	26	87	.....	18	.....	54	33	20	367	3	1
129 406	8143	204	245	55	114	77	182	931	.....	10356	37	12
130 13	155	58	28	27	5	2	3	20	2	313	.....	.....
21045	414035	24264	68999	43306	9052	9210	25607	41170	15289	679096	1147	1214

TABLE C.—Evening Classes, 1885-6.

INSTITUTE.	Number of Students.	SUBJECT TAUGHT.
Alton	18	Writing, Book-keeping and Arithmetic.
Almonte	21	do do
Arnprior	11	do do
Barrie	16	do do
Brantford, P.L.	37	do do
Brockville	12	Elocution.
Carleton Place	17	Book-keeping.
Clinton	4	do and Arithmetic.
Durham	42	Writing and Arithmetic.
Fergus	23	do Book-keeping, Arithmetic, Botany and Physiology.
Garden Island	58	do do and Grammar.
Goderich	17	Book-keeping.
Guelph, P.L.	16	Wood Carving.
Hespeler	59	Writing, Book-keeping and Arithmetic.
Kingston	125	do do and Phonography.
Midland	14	do do
Napanee	21	do do and Grammar.
Orillia	29	do do
Paisley	26	Book-keeping, Arithmetic, Botany, Canadian History, Composition and Spelling.
Penetanguishene	69	Writing, Book-keeping and Arithmetic.
Preston	25	do do
Seaforth	34	do do,
Simcoe, P.L.	33	do do
Whitby	20	do do

TABLE D.—Evening Classes, 1885-6, Drawing.

INSTITUTES.	Number of Students.	SUBJECT TAUGHT.
Ailsa Craig	31	Freehand, Geometrical, Perspective, Model, Memory and Blackboard.
Almonte	18	do do do
Arnprior	25	do do do
Aurora	27	do do do
Barrie	17	do do do
Blyth	15	do do do
Brantford, P. L.	51	do do do
Brockville	33	do do do
Berlin, P. L....	32	do do do and Indus-
		trial Designs.
Carleton Place..	12	Mechanical Drawing.
Cheltenham	21	Freehand, Geometrical, Perspective, Model, Memory and Blackboard Drawing.
Claude	23	do do do do
Durham	42	do do do do
Elora	35	do do do do
Galt	28	do do do do
		and Machine and Architectural Drawing.
Garden Island..	42	Freehand, Geometrical, Perspective, Model, Memory and Blackboard Drawing.
Georgetown	40	do do do do
Goderich	16	do do do do
Guelph, P.L....	85	do do do do
Kemptville	23	do do do do
Lindsay	22	do do do do
Midland	32	do do do do
Milton	28	do do do do
Mitchell	44	do do do do
Mount Forest ..	16	do do do do
Newmarket	15	do do do do
Napanee	9	do do do do
Orangeville	25	do do do do
Orillia	15	do do do do
Paris	33	do do do do
Penetanguishene	38	Freehand.
Perth	24	Freehand, Geometrical, Perspective, Model, Memory and Blackboard Drawing.
Peterborough ..	16	Mechanical Drawing.
Parkhill	48	Freehand, Geometrical, Perspective, Model, Memory and Blackboard Drawing.
Port Perry	19	do do do do
Prescott	27	do do do do
Preston	21	do do do do
Richmond Hill ..	28	do do do do
Schomberg	18	do do do do
Seaforth	132	do do do do
Smith's Falls ..	14	do do do do
Stouffville	19	do do do do
Streetsville	25	do do do do and Model.
Strathroy	39	do do do do Model, Memory and Blackboard Drawing.
Stratford	38	do do do do
St. George	30	do do do do
St. Marys	16	do do do do
St. Catharines..	24	do do do do
Uxbridge	38	do do do do
Woodstock	12	do do do do
Whitby	25	do do do do

TABLE E.—Mechanics' Institutes Evening Classes in Drawing, shewing number of students attending the Examination, on 1st and 2nd March, 1886, Certificates taken and extra grants paid.

I. GRADE B.—ELEMENTARY.

NAME OF INSTITUTE.	No. of Students for Examination.	NO. OF PROFICIENCY CERTIFICATES IN GRADE B TAKEN.					Total.	No. of Teachers' Certificates, Grade B.	Grant paid for Certificates.
		Freehand.	Geometry.	Perspective.	Model.	Memory.			
1 Aurora.....	23	1	1		2		4		\$ c.
2 Ailsa Craig.....	24	4	3	2	5		14		3 00
3 Almonte.....	6	3			3	2	8		12 00
4 Arnprior.....	25	3	4		3	3	13		7 00
5 Barrie.....	13	5	1		6	2	14		12 00
6 Berlin (P.L.).....	32	12	16	3	9	2	42	1	11 00
7 Blyth.....	15	4	4		5	2	15		30 00
8 Brockville.....	20	11	6		10	4	31		13 00
9 Brantford (P.L.).....	14	5	5	1	6	3	20	1	28 00
10 Cheltenham.....	21		1		2		3		14 00
11 Claude.....	22	4	2		4		10		12 00
12 Durham.....	18	5	11	5	11	4	36	2	8 00
13 Elora.....	35	19	14	6	15	17	71	4	22 00
14 Galt.....	28	8	8	3	10	6	35	2	42 00
15 Garden Island.....	40	7					7		26 00
16 Georgetown.....	30	3	8	1	12	1	25		7 00
17 Goderich.....	17	4	2	4	12		22		19 00
18 Guelph (P.L.).....	85	16	22	5	18	10	75	2	20 00
19 Kemptville.....	18	3	4		2	4	13		51 00
20 Lindsay.....	16								7 00
21 Mount Forest.....	7	2	3		5	2	12		
22 Milton.....	18	7	8	2	11	7	35	2	9 00
23 Midland.....	28	5			4	1	10		20 00
24 Mitchell.....	31	10	15	7	8		40		8 00
25 Napanee.....	11		1	1			2		31 00
26 Orangeville.....	21	8	8		9	5	30		2 00
27 Orillia.....	13	2	3	1	6	3	15	1	22 00
28 Paris.....	11	4	1		1	2	8		12 00
29 Penetanguishene.....	21	8					8		8 00
30 Parkhill.....	48	5	6		13		24	2	8 00
31 Perth.....	22	5	4				9		23 00
32 Peterborough.....	14								9 00
33 Port Perry.....	16	3	14	2	6		25		
34 Prescott.....	19	6	2		5	5	18	2	19 00
35 Preston.....	22	4			3		7		16 00
36 Richmond Hill.....	28	2	1				3		7 00
									3 00

TABLE E.—Mechanics' Institutes Evening Classes in Drawing, etc.—*Continued.*

GRADE B.—ELEMENTARY.

NAME OF INSTITUTE.	No. of Students for Examination.	NO. OF PROFICIENCY CERTIFICATES IN GRADE B TAKEN.					Total.	No. of Teachers' Certificates, Grade B.	Grant paid for Certificates.
		Freehand.	Geometry.	Perspective.	Model.	Memory.			
37 St. Catharines	19	4	6	2	7	3	21	.....	\$ c.
38 St. George	23	5	1	.....	6	4	16	1	13 00
39 St. Marys	17	5	3	.....	11	3	22	1	14 00
40 Schomberg	7	.....	.....	.....	.....	.....	.....	.....	18 00
41 Seaforth	132	19	30	2	26	31	108	2	84 00
42 Stouffville	5	1	.....	.....	3	5	9	.....	8 00
43 Smiths Falls	14	4	4	2	5	2	17	1	10 00
44 Strathroy	25	5	13	1	7	1	27	2	22 00
45 Streetsville	24	12	12	4	10	2	40	1	28 00
46 Whitby	20	5	13	4	8	6	36	1	24 00
47 Woodstock	24	13	12	.....	15	5	45	1	29 00

II. GRADE A.—ADVANCED.

NAME OF INSTITUTE.	Shading flat.	Shading round.	Flower Drawing.	Machine Drawing.	Industrial Design.	Wood Carving.	Total.	No. of Teachers' Certificates, Grade B.	Grant paid for Certificates.
1 Berlin Free Library	5	.....	5	.....	\$ c.
2 Carleton Place	3	.....	.....	3	.....	3 00
3 Guelph Free Library	7	7	.....	.....
4 Galt (M.I.)	4	2	.....	6	.....	.....
5 Peterborough (M.I.)	1	.....	.....	1	.....	1 00
6 St. Marys (M.I.)	1	1	1	.....	.....	.....	3	.....	.....

ASSOCIATION OF MECHANICS' INSTITUTES OF ONTARIO.

EIGHTEENTH ANNUAL AND FINAL REPORT.

In February last a meeting of the Executive Committee was held to confer with the Hon. the Minister of Education on the provisions of a Bill then about to be introduced to the Legislature, "Respecting Mechanics' Institutes and Art Schools." The Bill so introduced was passed and received His Honour the Lieutenant-Governor's assent on the 25th day of March last (see Stat. of Ontario, 49 Vic., chap. 35); and your Executive Committee, in view of the provision therein made that this Association shall cease to be a body corporate on and after the thirtieth day of September, 1886, did not feel that it would have been justified in asking the Associate Institutes to elect delegates and incur the expense of their attendance at an annual meeting in this city.

The Statute so enacted, and the full regulations for the conducting of Mechanics' Institutes and Art Schools, have been published in pamphlet form by the Hon. the Minister, and copies thereof have been supplied to the Mechanics' Institutes and other interested societies; and your committee trust that they will be found to be promotive of the best interests of these Associations.

Not having received the usual schedules of the Associate Institutes' Annual Reports, your committee is not prepared to furnish statistics of their respective standing and operations for the past year, except as to the several lectures delivered under the auspices of this Association. These, with the names of the lecturers and their subjects, are as follows:—

SCIENTIFIC AND ILLUSTRATED.

Date.	Institute.	Lecturer.	Subject.
1885.			
Oct. 27 ..	Colborne	Dr. S. P. May, C. L. H.	Science in Mechanics' Institutes
Nov. 4 ..	Almonte	" " " "	Importance of Art to Trade and Manufactures, etc.
" 5 ..	Brockville	" " " "	Science and Art and its Applications.
" 6 ..	Campbellford ..	" " " "	" " " "
" 9 ..	Deseronto	" " " "	How Science and Art can be promoted by Mechanics' Institutes, etc.
" 10 ..	Iroquois	" " " "	Science and Art, and its Applications.
" 11 ..	Garden Island ..	" " " "	" " " "
" 16 ..	Weston	" " " "	How Science and Art can be promoted by Mechanics' Institutes, etc.
18 ..	Georgetown	" " " "	History of Science and Art.
21 ..	Parkdale	" " " "	History of Design, and Science of Daily Life,
30 ..	Waterloo	" " " "	Science and Art, and its Applications.
ec. 4 ..	New Hamburg ..	" " " "	Practical Science.
" 7 ..	Woodbridge	" " " "	Science and Art, and its Applications.
" 11 ..	Stratford	" " " "	Science and Art, and Science of Common Things.
" 22 ..	Streetsville	Rev. H. Rose, M.A.	A Walk Through Rome.
1886.			
Jan. 11 ..	Owen Sound	Dr. S. P. May, C.L.H.	Science and Art, and its Applications.
" 14 ..	Arkona	Rev. Hugh Johnston, M.A.	From London to Jerusalem.
" 19 ..	Norwich	Com. Cheyene, R.N.	Search for Sir John Franklin.
" 19 ..	Arnprior	Dr. S. P. May, C.L.H.	History of Science and Art, etc.
" 20 ..	Carleton Place ..	" " " "	" " " "
Feb. 19 ..	Exeter	Com. Cheyene, R.N.	Egypt and the late War.
" 22 ..	Barrie	H. B. Spotton, M.A.	Water.
Mar. 9 ..	Columbus	Com. Cheyene, R.N.	Travels in Canada, the Continent, and Cloudland.
" 16 ..	Ennottville	Rev. H. Rose, M.A.	A Walk through Rome.
" 22 ..	Seaforth	Dr. Campbell	Electricity and Magnetism.
" 26 ..	Elora	Rev. Hugh Rose, M.A.	Around the Bay of Naples.
April 16 ..	Caledonia	Com. Cheyene, R.N.	Egypt and the late War.
" 26 ..	Clinton	David Robb, Esq.	Physics and Chemistry.
May 11 ..	Mono Road	Com. Cheyene, R.N.	Egypt and the late War.

SCIENTIFIC AND ILLUSTRATED—Continued.

GENERAL.

Date.	Institute.	Lecturer.	Subject.
1885. Dec. 3 ..	Kemptville ..	Rev. Dr. Moffatt	Self-Culture — the Mechanics' Institute, its Books, etc., as aids thereto.
1886. Feb. 23 ..	Merrickville ..	"	"
" 25 ..	Renfrew	"	"
April 26 ..	Napanee	"	How Young Men May Rise, etc.
" 27 ..	Caledon	"	Self-Culture, etc., etc.
" 28 ..	Bolton	"	How Young Men may Rise, etc.
" 29 ..	Oakville	"	"
" 30 ..	Kingston	"	"

The aggregate attendance reported at the thirty-seven lectures was 7,363, or an average of 199 persons for each.

ROLL AND RECORD BOOKS.

Forty-three of the associate Institutes applied for and were supplied with copies of the Roll and Record Books during the past year. Some few copies of the Accession Catalogue Books have also been furnished. The unsold copies of these books will be transferred to the Department of Education. The secretary of the Association will at all times be glad to give any information in his power in respect to these books, or on other Institute matters.

As the Association will soon become a thing of the past, it is to be hoped that some other agency will be used for occasionally bringing together the representative workers of the Institutes for the exchange of ideas in respect to the work in which they are severally engaged. The Institutes in the past have been doing good work, and generally under very adverse financial circumstances, and of apathy on the part of the general public, and especially of the mechanical and manufacturing classes; yet much has been accomplished in leading their members to habits of reading and study, and to aspire to become more useful and better citizens than they otherwise would have been. Many examples could be cited of attainment to excellence in professional, literary and mechanical pursuits, through the stimulus received from the use of and the attendance upon the libraries, reading-rooms, evening classes and lectures of these institutions.

The Board of Arts and Manufactures for Upper Canada began its useful existence in 1857, and continued until succeeded by your Association in 1868. These two organizations have contributed largely to the establishing and successful working of the Associate Institutes of the Province. The details of supervision will hereafter rest altogether in the Department of the Minister of Education.

All which is respectfully submitted.

W. R. HARRIS, B.D.,
President.

W. EDWARDS,
Secretary-Treasurer.

Toronto, September 14th, 1886.

II.—ART SCHOOLS.

EIGHTH SESSION OF THE ONTARIO SCHOOL OF ART.

This session commenced on the 11th of January, 1886. There was no entrance examination, the teachers being empowered to advance students to the higher classes according to merit.

The following teachers were appointed for the session by the Minister of Education :—

Principal—Mr. W. Cruickshanks. *Assistants*—Mr. Arthur Reading, Miss Windeat, Miss Payne.

Painting in Oil and Water Colors and Modelling in Clay.

Miss Peel.

COURSE OF INSTRUCTION.

The course of instruction was the same as in the preceding session, viz :—

Elementary or Primary—Grade B.

1. Freehand Drawing from flat examples.
2. Practical Geometry.
3. Linear Perspective.
4. Model Drawing.
5. Memory and Blackboard Drawing.

Students must pass the necessary examinations in two of these subjects before they can be permitted to study in the advanced classes.

Second or High—Grade A.

1. Shading from flat examples.
2. Outline Drawing from the "Round" (casts or nature).
3. Shading from the "Round."
4. Drawing from flowers and objects of Natural History.
5. Advanced Perspective.
6. Descriptive Geometry and Topographical Drawing.
7. Drawing from dictation.
8. Machine Drawing.
9. Building Construction.
10. Industrial Design.

Special Subjects.

1. Painting in Oil and Water Colors.
2. Modelling in Clay and Wax.
3. Wood Engraving, including Pictorial Work.
4. Wood Carving.

TERMS.

Afternoon Classes in Drawing.—\$6 per term of thirty-six lessons.

Evening Classes in Drawing.—\$3 per term of thirty-six lessons.

Teachers and Normal School students were admitted to these classes at half rates.

Painting Classes.—\$2 per month—four lessons.

Modelling Classes.—\$6 per term of twenty lessons.

Wood Engraving Classes.—\$6 per term of twenty lessons.

Fees to be paid in advance.

The classes were conducted as follows :—

Afternoon Classes.—Mondays, Wednesdays, and Fridays, from 2 p.m. to 4 p.m.

Evening Classes.—Mondays, Wednesdays, and Fridays, 7.30 p.m. to 9.30 p.m.

Painting Classes.—Saturdays, 12 to 2 p.m.

Certificates and Awards open for competition to students in all Institutions in affiliation with the Ontario School of Art.

Gold Medal presented by the Honorable the Minister of Education for Advanced Course, Grade A.

Rules for Guidance of Competitors for the Gold Medal.

The candidates must be *bona fide* students in regular attendance at the affiliated Institution represented, as no teachers or outside students will be allowed to compete.

1. *Work done during the Session.*—There is no restriction as to the character or manner of execution, nor the time occupied in the studies of ornamental design, and outline and shading from the antique, done during the session.

2. *Time Study—Drawing from the Antique, full figure.*—The drawing shall not be less than two feet in height, on white paper, in chalk, either with or without the aid of stump, background shaded or plain. Work to be finished in thirty-six hours, regular school time, without assistance.

3. *Original Design.*—This is to be executed in pencil, on paper provided by the Department, size of drawing not less than six inches by four inches; time four hours. The designs recommended are those suitable for wall paper, carpets, oil cloth, or such like purposes.

A Bronze Medal for highest number of marks in Primary Grade B.

A Bronze Medal will also be given for the highest number of marks in Grade B from a Mechanic's Institute Student. As the Education Department will exhibit Art School work at the Colonial Exhibition in London in 1886, the work for competition for medals must be sent to the Department not later than 15th February, 1886.

A proficiency certificate will be awarded for each subject. Any pupil who passes in all the subjects in the Primary Course shall be entitled to a certificate known as Grade B; and any pupil who passes in the first eight subjects of the Advanced Course shall be awarded a certificate to be known as Grade A. Pupils holding certificates on Machine Drawing and Building Construction may omit Drawing from Flowers, and Drawing from Dictation, when competing for Certificate Grade A.

The holder of a Primary certificate will be legally qualified to teach Drawing in a High School, Model School or a Mechanics' Institute; the holder of an Advanced certificate in an Art School. The Education Department will accept a Primary certificate in lieu of the non-professional examination in Drawing for any class or grade of public school teacher's certificate.

Any college or private school may, for the purpose of taking the Departmental Examination, and with the consent of the Education Department, be affiliated with the Toronto Art School.

Purposes of the School.

The aim of the Ontario School of Art is to prepare such teachers as may be required for teaching industrial drawing in Public and High Schools, Mechanics' Institutes, and Industrial Art Schools; also, to provide technical instruction and art culture to persons employed in the various trades, manufactures, etc., requiring artistic skill.

The Educational Museum and Library.

The *Museum*, which is accessible to students for purposes of study, contains a collection of several thousand *Reproductions of Art*, consisting of Antiquities; Ancient and Modern Statuary; Paintings and Engravings of the celebrated masters of the Italian, German, Flemish, French and English Schools; Illustrations of Decorative Art, including Metal Work, Carved Ivory and Wood, Pottery, Porcelain and Glass, Textile Fabrics, Embroidery, Carvings on Ivory, Electrotypes, etc.

The *Library* contains a large collection of Publications on Art applied to Science and Manufactures, books of instruction on Drawing and Painting, and illustrated books containing etchings, engravings, and wood-cuts of the pictures and sculptures in the principal galleries of Europe.

The *Art School Rooms* are well equipped with modern Art Studies and appliances for the rapid advancement of students.

To prevent overcrowding, it has been decided to take only a limited number of students, who will be received in the order of their application.

The following detailed statement shows the numbers and occupation of the students in attendance this session, and their purpose of study:—

OCCUPATION.	PURPOSE OF STUDY.	NUMBER OF STUDENTS.
<i>Afternoon Drawing Classes.</i>		Males.
Art Students	Improvement	2
Baker	Technical	1
No occupation	Improvement	2
Stonecutter	Technical	1
		— 6
		Females.
Music Teacher	Teaching	1
No occupation	do	26
do	Improvement	15
Public School Teachers	Teaching	4
		— 46
<i>Afternoon Modelling Class.</i>		Males.
Designer	Teaching	1
		— 1
		Females.
No occupation	Teaching	2
do	Improvement	5
		— 7
<i>Painting Class.</i>		Females.
No occupation	Improvement	9
Public School Teachers	Teaching	7
		— 16
Total		76

Occupation of Students.—*Continued.*

OCCUPATION.	PURPOSE OF STUDY.	No. of STUDENTS.
<i>Evening Drawing Class.</i>		Males.
Art Students	Improvement	2
Artist	Professional	1
Bookkeeper	Improvement	1
Bricklayer	Technical	1
Cabinet-maker	"	1
Draughtsmen	Improvement	2
Engravers	Technical	8
Lithographers	"	2
Machinist	"	1
No occupation	Improvement	2
Normal School Students	Teaching	4
Paper Hanger	Technical	1
Painter	"	1
Photographer	"	1
Physician	Improvement	1
School Boys	"	11
Public School Teacher	Teaching	1
Train Despatcher	Improvement	1
Wood Carvers	Technical	2
Wood Worker	"	1
		— 45
		Females.
No occupation	Teaching	11
do	Improvement	10
Public School Teachers	Teaching	7
		— 28
<i>Evening Modelling Class.</i>		Males.
Art Student	Teaching	1
Artist	Professional	1
Carpenter	Improvement	1
Designer	Teaching	1
Marble Cutters	Technical	2
Painter	Improvement	1
School Boy	"	1
		— 8
Total E. C		81

76 Students attended the afternoon classes; 81 Students attended the evening classes.

A simultaneous examination was held on the 1st and 2nd days of March, 1886. The following list shows the certificates taken by the Ontario Art Schools and Institutes, Public, and High Schools and Colleges, affiliated therewith for examination purposes. (For Mechanics' Institute List see Table E).

ART EXAMINATION, 1ST AND 2ND MARCH, 1886.—GRADE B.—ELEMENTARY.

I.—Art Schools.

NAME.	No. of Students for Examination.	NO. OF PROFICIENCY CERTIFICATES TAKEN IN GRADE B.					Total.	No. of Teachers' Certificates, Grade B.	Grant for Certificates.
		Freehand.	Geometry.	Perspective.	Model.	Memory.			
Kingston.	65	22	18	4	34	23	101	7	\$ c. 117
London.	50	16	14	5	25	7	67	6	69 00
Ottawa.	46	17	6	4	6	7	40	1	69 00
Toronto.	82	39	18	5	48	23	131	5	.....
*Hamilton.	174	24	17	10	17	13	81	2	69 00

* By special arrangement this examination was held on 11th to 14th May, instead of 1st and 2nd of March.

II. GRADE A.—ART SCHOOLS, ADVANCED.

NAME.	No. of Students for Examination.	NO. OF PROFICIENCY CERTIFICATES TAKEN IN GRADE A.												Total No. Proficiency Certificates.	Teachers' Certificates, Grade A.	
		Shading Flat.	Outline Round.	Shading Round.	Flower Drawing.	Advanced Perspective.	Descriptive Geometry.	Drawing from Dictation.	Machine Drawing.	Building Construction.	Industrial Design.	Painting Oil Colours.	Painting Water Colours.			Modelling in Clay.
Kingston.	40	11	1	9	18	2	1	15	1	2	3	6	2	....	71	....
London "	20	4	2	1	4	1	6	....	....	....	1	....	....	3	21	1
Ottawa.....	45	4	3	1	9	....	....	....	4	2	6	3	2	....	34	....
Toronto	39	8	16	3	9	6	5	9	....	1	9	2	....	8	76	1
*Hamilton.....	2	....	....	1	1	....	....	....	....	....	....	....	....	....	2	....

* Special Examination, 11th to 14th May, 1886.

ART EXAMINATION 1ST AND 2ND MARCH, 1886.

Public and High Schools, Collegiate Institutes and Colleges.—Grade B.

NAME.	No. of Students for Examination.	No. of Proficiency Certificates in Grade B Taken.						No. of Teachers' Certificates, Grade B.
		Freehand.	Geometry.	Perspective.	Model.	Memory.	Total.	
Aylmer High School.....	39	4	23	9	2		38	
Belleville ".....	99	53	20	17	33	22	145	9
Belleville Albert College.....	26	5	1		6	4	16	
Bradford High School.....	24	4	6	1	5	4	20	
Brockville ".....	61	17	17	1	24	11	70	1
Chatham ".....	50	18	2		11	6	32	
Fergus ".....	26	3	9		5		17	
Kemptville ".....	19	4	3		4	2	13	
Kincardine ".....	22	2	4	1	3	1	11	
London Collegiate Institute.....	53	14	11	3	8	2	38	
Morrisburg High School.....	48	17	14	3	18	9	61	1
Milford Public School.....	8	2	2	3	2		9	
Orangeville High School.....	51	9	23	1	4	11	48	1
Owen Sound Collegiate Institute.....	212	23	74	3	39	29	168	3
Parkhill High School.....	40	3	5	1	5	2	16	
Port Perry ".....	41	6	12	1			19	
Pictou ".....	2	1			1		4	
Port Dover ".....	19	3	3	2	10	3	21	1
St. Thomas Alma College.....	21	5	4	5	13	5	32	2
" Collegiate Institute.....	20	8	11	4	5	2	30	
St. Marys ".....	19	3	3		3	1	10	
Stratford ".....	90	7	8		39	10	64	
Strathroy ".....	50		10				10	
Streetsville High School.....	18	1	6		4		11	
Toronto Wykeham Hall.....	2	1			2		3	
Whitby Collegiate Institute.....	61	19	18	5	14	18	74	7
" Ont. Ladies College.....	23	12	8	2	14	7	43	2
Woodstock High School.....	30	13	19	1	14	8	55	

HIGH SCHOOL AND COLLEGES.—GRADE A ADVANCED.

NAME.	Shading Flat.	Outline Round.	Shading Round.	Flower Drawing.	Advanced Perspective.	Descriptive Geometry.	Drawing from Dictation.	Industrial Design.	Painting in Oil.	Painting in Water Colours.	Total No. of Grade A, Proficiency Certificates.	Teachers' Certificates, Grade A.
Belleville High School....	2						3				5	
Stratford ".....									1		1	
St. Thomas Alma College..	1		2	3	2	1	1	2			12	1
Whitby Ladies' College...	4	2	1	3	1	1				3	15	

MEDALS AND CERTIFICATES AWARDED.

Gold Medal, Carrie Lampman, Ottawa.

Gold Medal Certificate, Miss V. Howard, Toronto.

Silver Medal, Samuel Wright, Toronto. Design, Wall Paper.

" Mrs. E. A. Power, Kingston, " Oil Cloth.

" M. C. Edey, Ottawa, " Iron Fence.

Bronze Medal, Annie Dryden, Whitby Collegiate Institute.

" L. P. Snyder, Guelph Mechanics' Institute.

" Chas. E. Wrenshall, Kingston Art School.

Presented by the
Ontario Manu-
facturers' Asso-
ciation.

GRADE A CERTIFICATES.

J. A. E. Payne, Toronto.

J. R. Peel, London.

Eva M. Brooke, St. Thomas.

ONTARIO SCHOOL OF ART.

Grade B Certificates continued from page 202, Minister's Annual Report, 1885.

NAME	ADDRESS.	NAME	ADDRESS.
<i>Males.</i>		<i>Females.</i>	
A. G. Anderson	Port Dover.	G. Althouse	Strathroy.
George Anderson	Seaforth.	Mary Bull	Durham.
M. W. Althouse	Parkhill.	Rose Birmingham	Kingston.
John S. Barnard	Whitby.	Emma Clarke	Belleville.
R. J. Beeman	Toronto.	Minnie Ida Chimick	Elora.
Geo. L. Brown	Morrisburg.	Louise E. Cumming	Woodstock.
John H. Birkett	Kingston.	Emma Connor	Belleville.
J. T. Blandin	Belleville.	Mary S. Clarke	Belleville.
W. H. Croaker	Orillia.	M. Dawson	St. Mary's.
Jas. Carrie	Owen Sound.	Annie Dryden	Whitby.
A. S. Cruickshank	Hamilton.	E. H. Ferguson	Kingston.
Donald Davidson	Strathroy.	Florence Graham	Toronto.
Arthur Dundas	Whitby.	Eliza Ann Griffiths	London.
Jas. Dempster	Toronto.	Clara Horning	Brantford.
Edwin D. Eidt	Berlin.	Charlotte Jeffery	London.
George Emmett	Whitby.	Hette M. Jarvis	London.
J. W. Foster	Owen Sound.	Carrie Lampman	Ottawa.
Anthony Freeland	Prescott.	Polly Morton	Belleville.
James Garvin	Smith's Falls.	May Mitchell	Belleville.
W. J. Galbraith	Streetsville.	Kate McBride	London.
Harry Howell	St. George.	Susie McKay	St. Thomas.
Harry Horwood	Prescott.	E. Orr	Whitby.
Thos. C. Irwin	Owen Sound.	E. Pearson	Toronto.
J. Kelman	Galt.	E. A. Power	Kingston.
Fred. Luttrell	Guelph.	Jennie Pattison	Milton.
Jas. Lawlor	Whitby.	Doll Rombough	Durham.
Alex. Leith	Hamilton.	Minnie Robertson	Milton.
R. Mitchell	Elora.	Annie Strong	Toronto.
George McCrea	Brockville.	K. N. Snyder	Belleville.
W. J. McIlwaith	Galt.	Nettie Snyder	Elora.
H. B. McClellan	Orangeville.	Annie Simpson	Elora.
J. McFadgean	Seaforth.	Jennie Teple	St. Thomas.
Albert McPherson	Parkhill.	E. Walker	Whitby.
J. R. Peel	London.		
Thos. Power	Whitby.		
R. K. Rows	Kingston.		
Louie Richardson	Whitby.		
L. P. Snyder	Guelph.		
Henry Smith	Kingston.		
Clarence Starr	Whitby.		
J. K. Sutherland	Belleville.		
Chas. E. Wrenshall	Kingston.		
Cecil Webb	London.		
Thos. Wickett	Belleville.		

ART CLASSES FOR TEACHERS—SUMMER OF 1886.

The following circular was sent on the 1st May, 1886, to the Public School Inspectors :—

Circular to Public School Inspectors.

SIR,—The Drawing Classes conducted at the Education Department, Toronto, during the last two summers will not be continued during the current year. It is nevertheless desirable, in order still further to qualify teachers in this subject, that facilities of some kind should be offered for their self-improvement. Instead of the classes formerly taught at the Department it is now proposed to give a grant to each Inspectoral Division in which a class is formed for instruction in elementary drawing.

The conditions on which such classes may be formed are :—

1. The class must consist of at least ten persons holding a public school teacher's certificate.
2. The teacher in charge must possess a legal certificate to teach drawing ; or to be approved of by the Education Department.
3. At least thirty lessons of two hours each must be given.
4. Teachers who attend this course will be allowed to write at the Departmental examination in Drawing in April, 1887.
5. The Primary Drawing Course only shall be taught.
6. A grant of \$20 will be made for each class of 10 pupils, but only one class will be paid for in any Inspectoral Division.

Will you be good enough to inform the teachers of your Inspectorate of these proposals, in order that they may make the necessary arrangements for organizing classes.

Yours truly,

GEO. W. ROSS,

Minister of Education.

Toronto, May 1st, 1886.

In response to this circular, Art Classes were formed in the following towns and villages :—

Summer Drawing Classes, 1886, in the following subjects :—

Freehand, Geometrical Perspective, Model, Memory, and Blackboard Drawing.

PLACE.	Teacher and Qualification.	Number of Teachers in Class.	Number of Lessons.
Aurora	W. A. J. Martin, 2nd Class Certificate and passed in four subjects, Grade B	10	30
Barrie	D. A. Shaw, Grade B Certificate	17	30
Cannington	M. Nulling, do	15	75
Collingwood	Edward Ward, do	13	60
Prince Edward	W. S. Rose, do	8	30
Parkdale	R. W. Hicks, do	13	30
Sarnia	Messrs. Wark and Grant, Grade B Certificate	11	30
Stratford	Wm. Burns	24	35
Thornbury	W. H. Stevens, Grade B Certificate	13	30

"The Toronto Art School" having become incorporated, under the Act of the Provincial Legislature, respecting Mechanics' Institutes and Art Schools, is now carrying out the practical work in Toronto, heretofore under the management of the "Ontario Art School," established in connection with the Education Department, and its report will appear with the reports of the other Art Schools established under that Act, so that the continued existence of the classes in connection with the "The Ontario School of Art" became unnecessary.

REPORT OF THE WESTERN SCHOOL OF ART AND DESIGN, LONDON, ONT.

SIR,—On behalf of the Board of Directors of the Western Ontario School of Art, I beg to submit the Annual Report of the School for the year ending the 21st of December, 1886 :

The School is governed by a board of directors, elected annually, the following being the names of those constituting the Board for the present year :

Col. J. W. Walker, President ; W. Saunders, Vice-President ; W. R. Meredith, M.P.P., Jas. Griffiths, R.C.A., Col. R. Lewis, D. McKenzie, M.P.P., John Marshall, Chas. Murray, J. R. Peel, J. H. Griffiths, S. K. Davidson, and Chas. Chapman.

The number of pupils in attendance during the year was 103 for the evening classes, at which the curriculum of studies as required by the Minister of Education, has been followed. A number of the pupils availed themselves of the opportunity to take the examinations in the various classes in which they were studying. The following members gained certificates of proficiency :

In Grade B.

Freehand Drawing	16	Model Drawing	25
Practical Geometry	14	Memory Drawing	7
Linear Perspective	5		

In Grade A.

Shading from the flat	4	Advanced Perspective	1
Outline Drawing from the Round	4	Descriptive Geometry	6
Shading from the Round	1	Industrial Design	1
Drawing from Flowers	5	Modelling in Clay	3

Extra classes were also held for teaching painting on china, oil, and water colour painting, both from copy and natural objects, the number of pupils being 52. These classes being self-sustaining, the funds of the school are not used to assist in carrying them on.

At the request of the Minister of Education, a collection of the work of the pupils done in the school was collected and sent to the Educational Department, to be forwarded to the Indian and Colonial Exhibition as an exhibit of the work of this school. Thirteen cases were sent, comprising oil and water colour paintings, originals and from copies, crayon drawings from the flat and from models, mechanical and architectural drawings, industrial designs, modelling in clay, plaster casts, original and from copy, also a large assortment of painting on china. Considerable expense was incurred in preparing and sending the same, which the school could not well afford, as at the present time there is urgent need of additional funds for the purchase of models and other necessary appliances to enable the directors to carry on the school efficiently and progressively as would be most desirable.

The following is the Treasurer's report of the receipts and disbursements for the year:

Receipts.

Balance on hand 1st January, 1886	\$227 27
Government grant	500 00
" " for certificates	69 00
Fees from pupils	436 25
Interest on deposits to July 1st, 1886	11 27
	<hr/>
	1,243 79
Balance due Treasurer	94 75
	<hr/>
	\$1,358 54

Expenditure.

Rent, fuel, light, etc	\$300 00
Tuition	756 00
Printing and advertising	22 58
Studies and models	39 50
Sundry accounts	48 83
Plant	41 98
Expenses preparing and sending models and studies to Colonial Exhibition	79 65
Secretary and Treasurer's salary	50 00
	<hr/>
	\$1,338 54

CHAS. CHAPMAN,
Secy-Treasurer.

London, 31st December, 1886.

ANNUAL REPORT OF THE ART ASSOCIATION, OTTAWA.

The School opened on the 15th September, 1885, and closed on the 4th April, 1886, having been opened for the usual period of six months, irrespective of the Christmas holidays.

The following have constituted the teaching staff during the past year: Mr. Charles Moss, head master; Mrs. Cowper Cox, Mr. G. W. Stalker, Mr. R. L. Paley, Mr. J. T. Bowerman, Mr. J. P. Lamb, Mr. W. H. Burns (clay modelling), Miss McDonald and Miss Barrett (art needlework).

The Industrial Art course is in accordance with the scheme laid down by the Ontario Government, with whose Art School this institution is in affiliation. It includes a machine drawing class, which has proved to be of high practical service to intending engineers, and has attracted to it several employees of the machine shops of the city; a class for architectural drawing, a clay modelling class, besides classes for the practice of freehand drawing and the study of design applied to textile fabrics, paper hangings, iron work, etc. Practical geometry and perspective have been taught as the special work of a master certified by the Education Department.

The fine Art course has included study from the antique cast, the draped figure, oils, water-colours and the nude model.

The total number of students attending during the whole or a portion of the session is 149—a number considerably in excess of that reached in former years, the number last

year reaching 87, and the year before 114. To this must be added the Art Needlework class in which the numbers aggregate 56. The various occupations of the students show the widely extended interest created by the institution. Its doors are open to all at a fee which is almost nominal: payment of \$1.00 a month entitling a student to instruction for 24 nights in all the branches of industrial art work taught. While the day classes are chiefly attended by ladies, the night industrial classes draw together men of all ages and positions, teachers, machinists, carpenters, builders, carriage painters, carvers, and even one "railway car conductor" who for some time pleasantly filled his leisure hours in the school. A number of young lads have been regular attendants and the classes of freehand and design, geometry and perspective, have attracted also a large number of young ladies as students.

Of the 149 students attending the school the following is the division according to the subjects taken up: Freehand, 85; design, 20; geometry perspective, etc., 64; machine drawing, 21; drawing from the antique cast, 33; sketching from life, 18; Water colors, 20; oil colors, 8; drawing from the nude figure, 6; clay modelling, 4.

The total number of pupils presenting themselves for the Government examinations held on March 1st, 2nd and 3rd, was 46.

The number of Government certificates gained as the result of these examinations was 83, as against 51 last year, the highest number obtained by any individual pupil being seven out of nine subjects taken up.

The Education Department offered for competition amongst all the Art Schools of the the Province affiliated to its own school, and including that school, a gold medal for the best work from the antique cast and in design. The medal has been awarded to Miss Carrie Lampman of this school.

The Canadian Manufacturers' Association placed in the hands of the Education Department a silver medal, to be competed for amongst the pupils of the school, the subject being an "Iron Fence." Eight competitors sent in designs and the medal was awarded to Mr. M. C. Edey.

The school has sent to the Colonial and Indian Exhibition 86 specimens of the work of its pupils, viz.: 28 studies from the antique, the draped figure and the nude; 27 designs, 12 water colours, 15 oil colour studies and 4 drawings of machinery.

The prizes gained by pupils of this school during the past session were presented by His Excellency the Marquis of Lansdowne, the Patron of the Association. His Excellency also presented the 83 certificates granted by the Ontario Government, together with the gold and silver medals gained by the pupils of the school.

The financial report of the Association's affairs is represented by the following summary, the accounts of the year having been duly audited and found correct. The auditors were Mr. J. H. Pinhey, Mr. F. Gourdeau and Mr. J. Armstrong.

TREASURER'S STATEMENT, 1885-6—RECEIPTS.

Balance from previous year.....	\$65 59
Ontario Government grant.....	400 00
Ontario Government allowance for certificates gained.....	69 00
Royal Canadian Academy grant for 1884-5.....	100 00
Royal Canadian Academy grant for 1885-6.....	150 00
Donations.....	605 25
Subscriptions.....	250 00
School fees.....	620 67
Net proceeds of theatrical entertainment.....	102 47
	<hr/> \$2,362 98

EXPENDITURE.

Salaries of Teachers.....	\$1,258 00
Heating	100 00
Light	119 90
Printing and advertising.....	91 90
Stationery and material	39 03
Improvements to building	210 58
Improvements to drain	58 75
Furniture	29 50
Rent	84 00
Interest	63 00
Water rates, etc.	16 71
Insurance	14 95
Life models	44 30
Prizes (1885)	32 50
Miscellaneous	42 98
	<hr/> \$2,206 10
Balance on hand	156 88

F. A. DIXON,
Secretary.

Ottawa, April, 1886.

REPORT OF THE KINGSTON ART SCHOOL FOR THE YEAR ENDING 1ST MAY, 1886.

SIR,—I beg to submit the following report in connection with the working of the Kingston Art School, for the year 1885-6.

The School opened in the beginning of October, 1885, and closed at the end of May 1886.

The staff consists of two teachers, Mr. H. W. Poor, Principal, and Miss C. Emmins, Assistant.

The pupils in the different classes were:

Advanced Class, Afternoon.....	8
“ “ Evening	16
Primary “ Afternoon.....	18
“ “ Evening	13
Painting “	24
Sketching “	23

At the examinations the pupils took 163 Certificates (Proficiency); 2 Grade B Certificates; Bronze Medal for highest number of marks in Elementary subjects, and Silver Medal for Carpet design.

The Receipts for year were as follows:

Balance from 1884-5.....	\$155 76
Subscriptions	76 00
Government grant.....	400 00
“ “ for Certificates	117 00
Fees from pupils	632 85
Proceeds of Concert	33 50
Balance	227 78
Total.....	<hr/> \$1,642 89

Expenditure for Year.

Salary of Principal, eight months	\$800 00
“ Assistant “	400 00
“ Caretaker “	40 00
Furniture	141 54
Gas and coal oil.....	52 24
Fuel	60 00
Printing	48 75
Rent	60 00
Examiners' fees	14 80
Sundries	25 56
	<u>\$1,642 89</u>

ASSETS AND LIABILITIES.

Assets.

Cash on hand.....	\$76 19	
Furniture, casts, etc	253 20	
	<u> </u>	\$329 39

Liabilities.

Accounts, etc., unpaid	\$308 20	
Balance.....	21 19	
	<u> </u>	\$329 39

Certified correct,

W. B. WATERBURY,
Auditor.G. E. HAGUE,
Secretary.

Kingston, 1st Dec., 1886.

REPORT OF THE HAMILTON ART SCHOOL.

SIR,—On behalf of the Board of Trustees of the Art Association of this city, I have the honour to submit the report of the Hamilton Art School, for the first session just closed.

The school is governed by a Board of Trustees, the following being the names of those at present constituting the Board, viz.:—J. M. Gibson, M.P.P., President; B. E. Charlton, Vice-President; W. A. Robinson, Secretary-Treasurer; T. H. Macpherson, (Chairman Board of Trade), Samuel Baker, (Manager N. & N. W. Railway), Rev. Samuel Lyle, A. T. Wood, John Knox, Richard Fuller, W. H. Judd, Alderman Bowes, Alderman Blaicker, Alexander Mackay (Mayor), Angus Sutherland, (Chairman Board of Education).

The “Art Association” was established on the 10th of October, 1885, for the purpose of establishing a well equipped Art School in this city.

The Art classes were opened in February, 1885, with 126 students, divided into an afternoon class of 38 students, and two evening classes of 44 students each. The applications for admission, however, were so numerous that the trustees were compelled to at once extend the school; and consequently opened three more classes, consisting of a Saturday morning class, with 49 students, and two extra evening classes, with 34 in each, making a total of 243 students, who attended their classes throughout the session with remarkable regularity until the end of May, when the school was closed for the summer holidays.

The School was chiefly under the instruction of Miss Ida N. Banting, assisted by Miss Anslie Borrow; the extra classes being instructed by Mr. W. S. Hicks.

The curriculum of study is the same as the "Ontario School of Art," and this being the first season of the school, it consisted chiefly of the Primary, or Grade B course. The classes were held three afternoons, one morning, and every night of the week during the session, the progress made being in every way satisfactory.

A Departmental examination was held in the school during the month of May, when twenty-four students received certificates of proficiency in Freehand, seventeen in Practical Geometry, ten in Linear Perspective, seventeen in Model Drawing, thirteen in Memory Drawing, and one student (having passed in all five subjects) received a full Teacher's Grade B certificate. Two students only, were examined in the advanced or Grade "A" course, one receiving a certificate for proficiency in "Shading from the Round," and one in "Flower Drawing."

It is the intention of the trustees to increase the usefulness of the school in 1886-7, by securing the services of a thoroughly qualified Head Master in addition to the instruction of the past session, so as to include all branches of Art School tuition.

The total amount of receipts and expenditure in connection with the Art School to date, is as follows:—

Receipts.

Students' fees.....	\$706 00
On account of subscriptions	511 00
Interest from savings bank	98
	\$1,217 98

Expenditure.

Preliminary expenses and Clerk's assistance	\$53 89
Advertising	49 55
Printing	17 25
Stationery, postage, etc.....	28 81
Fitting up rooms	59 69
Furniture and teaching apparatus.....	351 90
Rent, gas, water and attendance.....	229 64
Teachers' salaries.....	367 00
Cost of examinations.....	24 00
Balance on hand	36 25
	\$1,217 98

W. A. ROBINSON,
Hon. Secy.-Treasurer.

Hamilton, 28th June, 1886.

ONTARIO SOCIETY OF ARTISTS.

Annual Report of the Vice-President for the year ending May 1st, 1886.

On behalf of the Executive Council, I have pleasure in laying before you the following report:—

Membership.—During the year five new members have been added to our roll of professional members, and one name erased for non-payment of fees.

The society is to be congratulated upon this increase, as it is felt that new members will, by their ability, be an honour to the profession.

Exhibitions.—Our last annual exhibition was held in conjunction with the Royal Canadian Academy, and the advance in quality of work was very decided, whilst the capacity of our gallery was taxed for space.

The financial arrangements was assumed by the Academy. At the beginning of the winter season it was thought desirable that a winter exhibition should be held, to give an opportunity of showing the summer's work and effecting sales thereof. Accordingly, an exhibition was held in December last, which may be regarded as a success. Whether the tax of two exhibitions a year upon the working powers of our members is desirable, remains for consideration.

Through the liberality of the *Century Company*, of New York, we have been enabled to set before the public an exhibition of drawings in black and white, being the originals of various illustrations which have appeared in that truly artistic publication. This exhibition has been a source of enjoyment to all who saw it, and will be long remembered.

Life Class.—In consequence of this class receiving so little attention from the majority of our members, it was deemed advisable to close it, and the students were accordingly notified to that effect.

Financial.—Your Committee have striven to exercise every economy in the expenditure of the funds of the Society, and trust that a perusal of the financial statement will meet with approbation.

During the year the Society, at its regular business meeting, determined to vest the management of the Society in the Executive Committee. The Committee will be increased by two, giving seven as the future number. How this change will benefit, remains to be seen, but every confidence is felt in the wisdom of the step. Important matters will have to be dealt with by the new Committee during the coming year. In our last report it was our duty to remark upon the effects of commercial depression upon the sale of pictures, and we are very sorry that a decided improvement cannot be reported at present, but we trust that the unwearying efforts of the Society, in educating the tastes of the people by good exhibitions, will be well rewarded in the near future.

(Signed) W. REVELL,
Vice-President.

Receipts and Expenditure for the Year ending May 1st, 1886.

RECEIPTS.	\$ c.	EXPENDITURE.	\$ c.
Balance from 1885	794 92	Rent and Insurance.....	430 00
Government Grant	500 00	Salaries and Caretaker ...	445 00
Fees, etc.	550 00	Repairs	35 00
Photographic Exhibition.....	25 00	Printing, etc.....	60 00
		Heating, etc.	60 00
		Loss, Winter Exhibition.....	5 50
		Sundries	50 00
		Balance	784 42
	1,869 92		1,869 92

PROVIDENT FUND.

RECEIPTS.	\$ c.	EXPENDITURE.	\$ c.
Balance from 1885	836 92	Paid Mrs. Blackwell	25 00
Interest	34 52	Balance on hand	849 44
	871 44		871 44

(Signed) J. SMITH,
H. PERRE, } Auditors.

APPENDIX K.—SCIENTIFIC SOCIETIES.

REPORT OF THE CANADIAN INSTITUTE, TORONTO, FOR SESSION 1885-6.

The Council of the Canadian Institute have the honour to submit their 37th annual report.

The most noteworthy event in the history of the Institute during the past year has been the formation of a Biological Section, and the incorporation into the Institute of the Natural History Society of Toronto. The alterations in the regulations, rendered necessary by the change, came into force for the first time this year. It is to be hoped that the union will prove of benefit to all those interested in it.

An earnest effort has been made during the year to awaken public interest in the subject of local archæology—the study of the records, now so quickly being obliterated, of the aboriginal races of this country. It is much to be desired that the Ontario Government will see their way to assist, in some manner, this important object.

We have lost during the past year our lamented former President, Mr. J. M. Buchan, whose untimely death fell on us with startling suddenness.

It has been determined to fit up the Mansard story of the Institute Building as a Museum, immediately, and tenders for this purpose have been called for. Unfortunately it has been necessary to increase the mortgage debt of the Institute \$1,000 for this purpose.

It has also been resolved to make an effort to raise, by an appeal to the public, funds to the amount of \$10,000, for wiping out the mortgage debt of the Institute, for completing the building by the addition of a properly equipped Lecture Room in the rear, as included in the original plan, and for the extension of the Natural History and Archæological Museum by the purchase of specimens.

The usefulness of the Institute has been further extended by admitting, as associate members, at a nominal fee, a considerable number of youths, principally engaged in mechanical pursuits, who are thus encouraged to pursue scientific studies.

With regard to the list of exchanges it will be seen that the number has been doubled during the past year, and is now five times what it was four years ago.

Respectfully submitted,

W. H. ELLIS,
President.

JAS. BAIN JR.
Secretary.

APPENDIX I.

Treasurer in account with the Canadian Institute, Session 1885-6.

To Balance on hand	\$ 23 63
“ Annual subscriptions	584 00
“ Rents	285 00
“ Journals sold	2 51
“ Books and periodicals sold	41 65
“ Interest on deposits	1 30
“ Government grant	750 00
	<hr/>
	\$1,688 09
	<hr/>

By Salaries	\$344 00
" Periodicals	69 90
" Interest on mortgage	238 78
" Printing	593 84
" Fuel, gas and water	161 57
" Postage, post cards and delivering proceedings	117 01
" Express charges	19 04
" Stationery	12 07
" Caretaker	10 00
" Taxes	11 07
" Discount on cheque	25
" D. Boyle, for specimens	15 00
" Refreshments (opening night)	13 00
" Repairs	19 51
" Balance on hand	63 05
	<u>\$1,688 09</u>

Examined and found correct.

(Signed,) W. HENDERSON, } Auditors.
T. B. BROWNING, }

Assets.

Building	\$11,000 00
Warehouse	720 00
Ground	2,500 00
Library	6,100 00
Specimens	1,300 00
Personal property	500 00
	<u>\$22,120 00</u>

Liabilities.

Mortgage	\$ 3,411 00
Balance in favor of Institute	18,709 00
	<u>\$22,120 00</u>

APPENDIX II.

Donations and Exchanges :—Books and Pamphlets received from April 1st, 1885, to April 1st, 1886, as compared with the three preceding years.

	1882-83.	1883-84.	1884-85.	1885-86.
Canada	30	90	110	129
United States	60	300	200	510
Great Britain and Ireland	100	200	160	344
India and Australasia	20	40	80	30
Foreign	70	170	180	489
Total	280	800	730	1502

APPENDIX III.

The number of Societies and Publications with which the Institute now exchanges is 328, shewing an increase of 168 during the year. They may be classified as follows :—

Canada.....	20	Netherlands.....	8
United States	97	Norway	5
Mexico.....	1	Portugal.....	1
Island of Cuba	1	Russia	4
South America	4	Spain	4
England.....	36	Sweden.....	8
Scotland	11	Switzerland	5
Ireland	6	Turkey.....	1
Austro-Hungary	15	Japan.....	3
Belgium.....	4	Java.....	2
Denmark.....	4	India.....	3
France.....	26	Australia.....	4
Algeria.....	1	New Zealand.....	1
Germany.....	32	Tasmania.....	1
Iceland.....	1		
Italy.....	19	Total.....	328

APPENDIX IV.

In the additions made to the Institute during my term of office, specimens illustrative of aboriginal and pioneer life occupy the first place.

In April of 1885, with the consent of the Council, I prepared a circular of which about one thousand copies were addressed to representative men of all classes throughout the Province, asking for information relative to localities connected with pre-historic and early historic events and requesting persons in possession of relics to forward them to the Institute for the purpose of enabling us to form an archæological exhibit worthy of the Province of Ontario.

In reply to that circular a large quantity of exceedingly valuable information has been collected relating to ancient village sites, battle grounds, portages, etc., and to persons in whose hands there are private collections of more or less value.

In company with other members of the Institute, as well as alone, I visited a few of the places within easy reach of the city, and was enabled to add several hundred excellent specimens to our collection.

A number of gentlemen also who had small collections kindly presented them to the Institute, and by an arrangement made with the York Pioneers, our Society became custodian of a large number of Indian and other specimens which are now in our cases.

Owing to the rapid expansion of our knowledge as to the number of places that are worthy of examination and survey, as well as because of the many objects we have discovered in the hands of collectors, it is to be deplored that our lack of funds precludes us from proceeding in a systematic and scientific manner in the formation of an archæological museum that would ultimately prove valuable to the Canadian student, and it is to be regretted that the Provincial Legislature failed to respond to our application for assistance in the prosecution of this national work.

The following is a list of the specimens that have been secured during the year, and which are now in cases supplied by the Institute at a cost of \$100. The cases have an area of 100 square feet and contain :—

104 Pipe Heads and Stems.
 92 Fragments of Pottery.
 3 Clay Cups.
 4 War Clubs.
 18 Strings of Beads.
 200 Loose Stone, Bone and Shell Beads.
 8 Small Stone Discs—Perforated.
 13 Perforated Stone Tablets.
 19 Pieces of Shell.
 1 Piece Carved Bone.
 1 Small Animal—Stone Carving.
 2 Horn Gouges.
 1 Piece of Perforated Horn.
 1 Complete Turtle Shell.
 1 Perforated “

1 Piece of Human Skull—Perforated.
 5 Skulls, almost perfect.
 1 String of Bone Beads.
 44 Bone Needles.
 460 Arrow Heads—(flint).
 7 “ “ mounted (iron).
 121 Stone Axes, Gouges and Chisels.
 9 Pieces of Sheet Copper.
 1 Whole Copper Kettle.
 12 Iron Knives—rusted and worn.
 9 Indian Ornaments (various).
 3 “ Medals (silver).
 6 Brass and Copper Rings.
 14 Iron Tomahawks.

Besides these there are several articles of a miscellaneous kind—the whole numbering fully one thousand.

The principal contributors were :—

Rev. T. T. Johnstone, of Ancaster.
 Mr. A. F. Hunter, Flos.
 Mr. Loughhead, Sunnidale.
 Mr. B. Jackes, Toronto.
 Mr. A. Elvins, “
 Mr. A. McKnight, Kirkwall.
 Mr. James Rae, “

Mr. M. M. Fenwick, Niagara Falls South.
 Mr. James Dwyer, Beverley.
 Mr. George E. Laidlaw, The Fort.
 Mr. J. Long, Eglinton.
 Mr. J. Welborne, Myrtle, and
 The Curator.

There are many fine geological specimens that ought to be attended to immediately, but with which it is impossible to do anything for the want of case room.

Before the close of another year it may be reasonably hoped that the whole collection in possession of the Institute will be put in proper shape for study.

Respectfully submitted.

DAVID BOYLE,
 Curator.

REPORT OF “L'INSTITUT CANADIEN FRANÇAIS DE LA CITÉ D'OTTAWA.

SIR,—I have the honor to submit to your consideration the following Report of “L'Institut Canadien Français de la Cité d'Ottawa,” for the year ending 30th April, 1886.

Our Literary Proceedings.

As will be seen by the following list of Readings given during the year, we have continued to give the first place to literature and study of history which we always considered to be the main object of a literary institution like ours.

Eleven public entertainments were given, and I am proud to say that from the way they were patronized, they were well appreciated by our population, which derived a great benefit from them.

- 1st. “The Language we Talk” By Nap. Legendre, F.R.S.C.
- 2nd. “Two Women from Comiello” Rev. Father Fillâtre, O.M.I.
- 3rd. “Montcalm” P. J. U. Baudry, Asst. Clerk P.C.
- 4th. “A Resurrection” Rev. Father Nolin, O.M.I.
- 5th. “To the North Pole” H. A. Talbot, Advocate.

- 6th. "The Study of Natural Sciences" Rev. Father Marsau, O.M.I.
 7th. "Traces of Aborigines noticed in the Discoveries of Archæological Specimens". By N. Faucher de St. Maurice, F.R.S.C.
 8th. "Our first Literary Relations with France". By A. Lusignar, F.R.S.C.
 9th. "England and Russia in India" By Nap. Champagne.
 10th. "Adulterations in Commerce and Society". By Dr. F. H. Valade, D.F.A.
 11th. "Dramatic Authors in Canada" By Hon. Senator P. Poirier.

In view of furthering the literary interest of its members, the Institute has also established, during the past year, relations with a great number of literary and scientific societies in France, Belgium, Spain, Portugal, Italy, Germany, Russia, Austria, Switzerland, Sweden, Norway, Denmark, England, Ireland, Scotland, Egypt, and the United States of America.

All these societies have so liberally responded to our call, by sending to us their various publications, that we have deemed it necessary to fit up a new room for our Library as well as for our Lecture-room, containing over thirty (30) newspapers.

So as to return the courtesy on the part of the above-named societies, it is our intention to publish in the future an annual report of our proceedings.

Our Scientific Branches.

As stated in my previous report, for want of proper accommodation, the study of mineralogy, etymology and archæology, is still reduced to isolate study, but the few pupils who will persist in those their favorite studies, manage to give to the other members the benefit of their knowledge, in the shape of petty lectures at our weekly meetings.

The fact of our having sent over twenty-five (25) specimens of architectural, linear and other drawings, as well as portrait drawing and samples of penmanship and decorative drawing and lettering, to the Colonial Exhibition, held in London, is the best proof we can give that this line of study is not neglected amongst our members.

Our Financial Position.

Considering the only Government help we receive is the small sum of \$300, kindly granted by the Ontario Government, it is astonishing we can accomplish so much.

If it were not for the contributions of our members and private subscriptions, it would have been next to impossible for us to meet the heavy expenditure brought upon us by our late disaster, the effects of which will long be felt.

We have, during the year, taken up the mortgage of \$7,000 on our property at 6%, and effected a saving for the future by borrowing the same amount at 5% interest.

This reduction of \$70, together with the subscriptions of thirty-six new members admitted since last report, has contributed in allowing us to show a small surplus of \$71.21 over our expenditure, which amounted to \$2,519.17.

Apart from the indebtedness caused by the roof caving in last year, and which is not all paid, our liabilities have not increased this year.

Respectfully submitted.

F. R. E. CAMPEAU,
President.

OTTAWA, 19th July, 1886.

OTTAWA LITERARY AND SCIENTIFIC SOCIETY.

Annual Report of the Council.

To the Members of the Ottawa Literary and Scientific Society:

In accordance with the By-laws, it is the duty of the Council to present you with a report of the work and progress of the Society during the past year, which they hope will be found satisfactory.

The Treasurer's statement shows a balance to the credit of the Society of \$138, being \$90 more than that of last year. The amount received for members' subscriptions, including arrears, is \$519, being an increase of \$61 over last year. During the year forty-eight new members have been elected. The sale of lecture tickets realized \$94.50, and the cash taken at the door during lectures was \$21.50.

In consequence of the long-continued serious illness of the Librarian, it has been found impossible to submit to this meeting full details of the work done in this branch of the Society; it may, however, be stated that no funds were available for any extensive purchases of books during the year, and the only material additions to the shelves have been works kindly donated and the periodicals which are regularly kept and bound.

Both library and reading-room have been extensively made use of, and the number of books issued will probably be found to exceed the aggregate of previous years. Members continue to express a desire to have Section C, comprising works of fiction, kept fuller and more completely up to date.

In the museum, little of note has occurred. The Society was applied to during the winter, by the Ontario Government, Department of Education, for collections from the museum to be sent home to the Colonial Exhibition. It was represented to them that the only branches in which a creditable showing could be made were in entomology, botany and mineralogy, and that in each of these sections more complete collections were being sent both from Ottawa and from other parts of Ontario. Upon this the Council was informed that it would not be necessary for them to contribute their collections.

The lectures of the season were delivered substantially in accordance with the programme issued at the beginning of the course, as follows:—

1885.

Nov. 26.—Inaugural Address, "Science in Canada". The President.

Dec. 3.—"The Rocky Mountains, and What I

Saw in Them".....Prof. Macoun, F.R.S.C.

" 17.—"A Study of Thackeray".....Mr. Martin J. Griffin.

1886.

Jan. 7.—"The Hudson's Bay Territories and

their Inhabitants".....Prof. Robt. Bell, M.D., L.L.D.

" 21.—"Travels in the South Seas".....Mr. F.N. Gisborne, M.I.S.E., F.R.S.C.

" 28.—"A Topic of the Times".....Hon. Wm. McDougall, C.B.

Feb. 4.—"Gaspé Peninsula, Past and Present".....Mr. R. W. Ellis, M.A.

" 11.—"Nathaniel Hawthorne and his Writings, with Illustrative Readings".....Mr. J. M. Oxley, B.A., L.L.B.

" 25.—Short Scientific Essays, "Is Vivisection or Experimentation on the Lower Animals Justifiable?".....Dr. R. W. Powell.

" Concerning Bread".....Mr. Wm. Scott.

" Eyes".....Mr. W. H. Harrington.

Mar. 11.—Short Literary Essays—

" Byron".....Mr. A. Lampman, B.A.

".....Mr. P. T. Lafleur, B.A.

".....Mr. A. W. Gundry.

The short scientific essays which were intended for one of the evenings were broken up, one of them being expanded to occupy a whole evening, and another being delivered upon the evening set apart for short literary essays. The latter, like those of last year, proved a great success, and amply demonstrated the advisability of continuing, or even extending, this feature of the course.

The Council here desires, on behalf of the Society, to express their cordial thanks to all the gentlemen who kindly assisted it, by preparing and delivering lectures during the course.

The Council have given to the owner of the premises which they at present occupy, notice, that under the terms of their lease, they intend occupying the rooms for two

years longer, at an annual rental of \$325. As it seems probable that at the expiration of that time a still higher rent may be asked, it behooves the Society to decide whether steps cannot be taken towards securing a building of their own in the meantime.

The Council regret to announce that their present custodian, Mr. W. H. Burns, having secured more remunerative employment, leaves the Society on the 1st of May. Mr. Burns has proved himself in every respect a satisfactory officer, and has, by his diligence and faithfulness, won the esteem of all who have been brought into contact with him in his present position.

Signed, F. K. BENNETT,
Acting Secretary.

OTTAWA, 31st March, 1886.

REPORT OF THE HAMILTON ASSOCIATION FOR THE YEAR ENDING 1ST MAY, 1886.

SIR,—I have the honour to enclose an abstract of the report presented at the annual meeting of the Hamilton Association, held in May last, giving some account of the work done by the Association for the session then ended.

I also send, attached to the report, the Treasurer's statement for the same period, shewing receipts and disbursements. I may add, that against the balance shown by the financial statement, there was a liability for printing transactions and for rent which has since been paid, leaving only a few dollars in the treasury.

Abstract of Report read at the annual meeting, held 20th May, 1886. Dr. Macdonald, President, in the chair.

During the session 1885-6, the Association has held eight general meetings, while the Council has met ten times.

At the general meetings, the following subjects have been discussed and papers read, viz. :—

"Education," being the Inaugural Address of the President elect, Rev. O. H. Mockridge, D.D.

"The Mound Builders Remains of Manitoba," by Charles N. Bell, Esq., R.G.S.

"The Pressure and Elasticity of the Atmosphere," illustrated by numerous experiments, by A. G. Aviller, Esq.

"Ornithology," by Thomas MacIlwraith, Esq., Superintendent for Ontario of the Migration Committee of the American Ornithologists.

"Pessimism," by Rev. S. Lyle, B.D.

"Telegraphic communication with moving trains," by George Black, Esq., of the G. N. W. Telegraph Company.

"Life in nature and Evolution in Life," by J. A. Moffat, Esq., member of the Council of the Entomological Society.

Our Society is fortunate in having connected with it as an active member, Thomas McIlwraith, Esq., who has, during the past session, contributed so much original work in the Biology section, by handing over to the Association an accurate description of nearly three hundred of the birds of the Province.

This important contribution to the science of ornithology by such an authority, will be published and distributed shortly.

Our Geological section has not been idle, and several contributions have been made to our collections of specimens.

The reading room has been supplied with some of the leading Magazines and Reviews, as in the past year.

Our present membership is 145. Twenty-four new members were elected during the past session.

At the same meeting the following gentlemen were elected as officers for the session, 1886-7 :

President, Rev. C. H. Mockridge, D.D.
 First Vice-President, Rev. Samuel Lyle, B.D.
 Second Vice-President, Matthew Leggat.
 Correspondent Secretary, Harry B. Wilton.
 Recording Secretary, A. Alexander, F.S. Sc., Lon., Eng.
 Curator, A. Gaviller.
 Treasurer, Richard Bull.

Council—J. A. Moffat, Samuel Slater, C. S. Chittenden, James Leslie, M.D., and William Milne, with the resident past Presidents.

A. ALEXANDER,
 Secretary.

HAMILTON, 24th September, 1886.

RECEIPTS AND DISBURSMENTS FOR THE YEAR ENDING MAY, 1886.

Receipts.

Balance, May, 1885.....	\$51 39
Government grant.....	400 00
Sundry subscriptions.....	176 00
Interest.....	1 50
	—————\$628 89

Expenditure.

Rent and gas.....	\$208 52
Furniture, book-case.....	21 00
Periodicals.....	64 08
Insurance.....	12 50
Printing, stationery, postage, etc.....	121 35
Balance.....	201 44
	————— 628 89

RICHARD BULL,

Treasurer Hamilton Association.

Audit accounts have since been paid to the amount of \$189.65, chiefly for rent and printing.

R. B.

September, 1886.

REPORT OF ATHENÆUM AND ST. PATRICK'S LITERARY ASSOCIATION OF OTTAWA, FOR THE YEAR ENDING 30TH APRIL, 1886.

The Association has steadily progressed during the past year.

The membership is larger, the interest more marked, and the attendance at meetings and classes more regular.

The central location of the rooms offered advantages, of which a large number of members availed themselves, especially during the winter evenings. The reading room and library are open from seven until ten each night, and are largely patronized.

The statistics subjoined show the working of the Association for the year referred to :

Receipts.

Cash on hand from last year	\$195 71
Membership and pupils' fees	194 50
Government grant.....	200 00
Other sources.....	382 77
	<u>\$972 98</u>

Expenditure.

Evening classes	\$237 25
Reading room	191 25
Rent and miscellaneous	538 03
Cash on hand	6 45
	<u>\$972 98</u>

EVENING CLASSES.

Subjects Taught.—Drawing, Arithmetic, Book-keeping, Grammar, Composition and Elocution.

Lectures on Elementary Moral Philosophy.

Number of pupils 120.

Debates, weekly, by members.

LIBRARY.

Number of volumes in library	300
“ “ issued	85

J. L. DOWLIN,
President.

OTTAWA, 17th May, 1886.

UNIVERSITY OF TORONTO ;
UNIVERSITY COLLEGE, TORONTO ;
SCHOOL OF PRACTICAL SCIENCE ;
AND UPPER CANADA COLLEGE.

UNIVERSITY OF TORONTO; UNIVERSITY COLLEGE, TORONTO; SCHOOL
OF PRACTICAL SCIENCE; AND UPPER CANADA COLLEGE.

1. ANNUAL REPORT OF THE UNIVERSITY OF TORONTO FOR 1885-6.

To His Honor, the Honorable John Beverley Robinson, Lieutenant-Governor of the
Province of Ontario, Visitor of the University of Toronto :—

MAY IT PLEASE YOUR HONOR :

The Chancellor, Vice-Chancellor, and Members of the Senate of the University of
Toronto have the honor to present their Report on the condition and progress of the
University for the year 1885-86.

The following tabulated statement of the admissions to Degrees, and *ad eundem
statum*, and of the number who matriculated in the different faculties from June, 1885,
to June, 1886, is submitted :—

Law—

Matriculation	33
Degree of LL.B.	3

Medicine—

Matriculation	21
<i>Ad eundem statum</i> from College of P. & S.	20
Degree of M. B.	16

Arts—

Matriculation	193
<i>Ad eundem statum</i>	4
Degree of B.A.	68
Degree of M.A.	6

Civil Engineering—

Degree of C. E.	1
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During the year 822 candidates underwent examination in the different Faculties as
follows :—

Faculty of Law	45
“ Medicine	91
“ Arts	614
“ Civil Engineering	1
Local Examinations for Women	71
Total	822

The class lists for the year are appended.

All which is respectfully submitted.

(Signed)

WM. MULLOCK,
Vice-Chancellor.

2. ANNUAL REPORT OF THE COUNCIL OF UNIVERSITY COLLEGE, TORONTO, FOR 1885-6.

To His Honor the Honorable John Beverley Robinson, Lieutenant-Governor of the Province of Ontario, and Visitor of University College :

MAY IT PLEASE YOUR HONOR :

The President and Council of University College beg leave to present to your Honor, as Visitor on behalf of the Crown, the following Report on the progress and condition of the College for the year 1885-6, and at the same time they avail themselves of the opportunity afforded by the late period at which the Report has to be presented, to submit a statement of the work now in progress in the current academic year.

The statistics submitted herewith of the number of students in attendance during the past academic year, and the studies pursued under the instruction of the various professors and lecturers, furnish the most satisfactory evidence of the successful prosecution of the work of the College. The increasing general interest in its progress has been manifested in the gratifying form of liberal contributions for furnishing the laboratories with needful apparatus ; and for founding prizes and scholarships for the encouragement of various branches of study. The sum of \$2,090 has been contributed by graduates and other friends of the College for providing some important additions to the apparatus required in the department of Physics, and since the last Report was presented they have to acknowledge the liberal gift by William Mulock, Esq., M.P., of the sum of \$2,000 to found scholarships in Mathematics and Classics. From another liberal donor who withholds his name, a similar amount of \$2,000 has been received for the purpose of establishing scholarships in the Natural Sciences ; and the sum of \$1,000 has been placed at their disposal by the Brown Memorial Committee, to found the George Brown Scholarship for the encouragement of the study of Modern Languages and History. A special die for College Medals has been executed at the cost of three friendly contributors, and medals are now being established in various departments. The Council have pleasure in reporting the founding, during the current year by an old honor graduate and medallist, W. H. O. Kerr, Esq., of a Gold Medal in Classics, to bear the name of the "McCaul Gold Medal," as a memorial of the late President and Professor of Classical Literature. They are also indebted to the liberality of Frederick Wyld, Esq., for the establishment of an annual prize of the value of \$25 in books for the encouragement of English Composition.

At the annual Convocation of the College, on the 10th of October, 1885, the number of students admitted for the first time amounted to 128, and the entire number of students in attendance on the College lectures during the academic year was 462. Of these 321 were under-graduates pursuing the full courses prescribed by the University for proceeding to a Degree in Arts. Of the students thus enumerated the returns show that they came in varying numbers from forty-one different counties of Ontario, and from the district of Algoma. They also included students from the Provinces of Manitoba and British Columbia on the one hand, and from Quebec on the other, as well as from the United States.

The returns thus far made up for the academic year show a still larger attendance, with a greater number of new entrants than has been admitted to the College in any previous year. At the University Convocation held on the 9th of June, 1886, eighty-two of the students who had pursued their undergraduate studies in University College and had been duly reported by the Board of Examiners of the University as having fulfilled all requirements prescribed as requisite for their respective degree, were admitted as follows, viz. : Six to the degree of Bachelor of Medicine ; one to the degree of Bachelor of Law ; seven to the degree of Master of Arts, and sixty-eight to the degree of Bachelor of Arts. The graduates in the various faculties here specified are exclusive of those admitted from other colleges, or exempted by the University from attendance on lectures. Since the re-organization of the University and College on their present basis in 1853, degrees have been conferred in the Faculties of Arts, Law and Medicine, on fourteen hundred and one students trained in University College, classified as follows : LL.D., 10 ; LL.B., 53 ;

M.D., 19; M.B., 71; M.A., 251; B.A., 997; making a total of 1,401 degrees conferred in those who have pursued their undergraduate studies in this College, and have proceeded to their respective degrees in the various faculties of the University. In this enumeration of students who, after completing their course in Arts, have proceeded to a degree in one or more of the faculties in the University, as in all other returns of students and graduates, in the Reports of University College, the results are carefully discriminated from those of the University, based on the entrants for its examinations and the results of the University Examiners' Reports as confirmed by the Senate. No student or graduate is included in the numbers here reported who has not passed through successive years of the College course as an undergraduate, or has been a student availing himself of the College work and in actual attendance on the lectures.

Since their last report, the Council have had much satisfaction in welcoming Dr. James F. McCurdy, a distinguished Oriental scholar, as an acceptable addition to the College staff, and the increased facilities thereby furnished for the teaching of the Oriental languages have encouraged the Senate to place this branch of study on a par with the Classics and the Modern Languages, and to create a special Honor Department, with a systematic course of additional subjects adapted to its requirements. In this the College Council not only recognize a wise concession to the just claims of Affiliated Theological Colleges, but also a step, as they trust, calculated to encourage a more extended study of an important class of languages now embraced under that comprehensive title, and thereby to promote in some degree the study of comparative philology and the science of language.

The following constitute the body of Professors, Lecturers, Demonstrators, Tutors and Fellows, under whom the instruction in the various departments of study has been carried on in University College during the year. Classical literature, embracing the Greek and Latin languages:—

Professor:—Maurice Hutton, M.A., Fellow of Merton College, Oxford.

Classical Tutor:—William Dale, M.A.

Fellow in Classics:—J. C. Robertson, B.A.

Oriental Literature, including Hebrew, Chaldee, Syriac and Arabic:—

Lecturer:—Jacob M. Hirschfelder, Esq.

James F. McCurdy, Ph. D.

German—Lecturer:—W. H. VanderSmitten, M.A.

French—Lecturer:—John Squair, B.A.

Fellow in French and German:—J. H. Cameron, B.A.

English Language and Literature, and Italian—Lecturer:—D. R. Keys, B.A.

Ancient and Modern History and Ethnology—Professor:—Daniel Wilson, LL. D., F.R.S.S.

Logic, Metaphysics and Ethics—Professor:—G. Paxton Young, M.A., LL.D.

Fellow:—A. S. Johnson, B.A.

Physics and Mathematics—Professor:—James Loudon, M.A.

Mathematical Tutor:—Alfred Baker, M.A.

Demonstrator in Physics:—W. J. Loudon, B.A.

Fellow in Mathematics:—J. H. McGeary, B.A.

Fellow in Physics:—T. Mulvey, B.A.

Mineralogy and Geology—Professor:—E. J. Chapman, Ph. D., LL.D.

Fellow:—H. B. Wood, B.A.

Biology:—R. Ramsay Wright, M.A., B. Sc.

Fellow:—A. B. McCallum, B.A.

Chemistry—Professor:—W. H. Pike, M.A., Ph. D.

Fellow:—F. T. Shutt, B.A.

Instruction is given in the lecture-rooms and laboratories by this staff of teachers in the various branches embraced in the requirements of the University for standing and degrees in the Faculty of Arts, and in conjunction with the Professors of Engineering, and of Applied Chemistry in the School of Practical Science, for the degree of Civil Engineer. By the arrangements provided for in the Act establishing a School of Practical Science for the Province, provision is made for the attendance of the students of the school at all lectures in University College, embraced in the courses of study, including practical instruction in the Physical, Chemical and Biological laboratories, and in Mineralogy and Assaying in the Geological Laboratory, and instruction is given by the Professors in the various requirements for Assaying, Mining, Geology, Analytical Chemistry, and the special applications of Mathematics and Physics to Engineering.

Since the last annual report considerable progress has been made in supplying deficiencies in the apparatus and furnishings of the Physical Laboratory. It is now furnished with a valuable collection of instruments of precision in the branches of Dynamics, Sound, Light and Heat. In previous reports attention has been drawn to the necessity for further additions to the philosophical apparatus, especially for the means of adequately illustrating the important branch of electricity. The Council are now gratified in being able to report that through the liberality of the graduates and other friends of the College, supplemented by a special appropriation by the Board of Trustees, valuable additions have been made to the furnishing of the Physical Laboratory during the past year in the branch of Static Electricity.

In applied Mathematics some important additional facilities have been provided and especially a workshop has been fitted up in the College, furnished with a gas-engine, lathes, and other appliances of value in the practical application of the instruction in the departments of Mathematics and Physics.

In the department of Biology important additions have been made to the teaching appliances by means of a liberal appropriation for that purpose from the Board of Trustees. They include a valuable series of Botanical Models, which have already proved of great service in instruction. A collection of Botanical diagrams has also been added to those previously in use, along with a series of models of microscopic organisms, which will be equally useful in the lecture-room and the museum. Some necessary additions to the Zoological collection in the latter have also been made, and the Council gratefully acknowledge among the gifts of the past year a fine specimen of a hippopotamus' skull, brought from Egypt by George W. Lewis, Esq., and presented by him to the museum.

By the purchase of much needed laboratory appliances, the equipment of the Biological Laboratory has been greatly improved, and a special room has been fitted up for the study of Bacteria. Much more, however, is still required to keep the standard of Biological teaching on a level with that of the best American colleges, especially in the direction of extending practical teaching to the elementary classes. For this purpose improved lecture room accommodation and a liberal supply of microscopes are indispensable.

The Mineralogical Laboratory has received during the past year some additions to its apparatus, but chiefly in the form of instruments for the use of the students to replace worn-out material. Further additions are still required before it can be reported as efficiently equipped. The Geological department is also still in need of important additions, especially for the required teaching in Palaeontology and Mining Geology.

Examinations were held by the various Professors and lectures in their several departments during the past academic year, and the hours, scholarships and prizes won by the successful competitors were duly awarded at the annual convocation, held on the 16th October.

The honor lists for the year, along with a synopsis of lectures, laboratory work and other details, will be found in the calendar, of which a copy is herewith appended.

All which is respectfully reported.

DANIEL WILSON,
President.

UNIVERSITY COLLEGE,
TORONTO, December 3rd, 1886.

ANNUAL REPORT OF THE SCHOOL OF PRACTICAL SCIENCE, TORONTO, 1886.

To the Honorable G. W. Ross, M.P.P., Minister of Education :—

SIR,—I have the honor to submit herewith the Report of the School of Practical Science for the year 1886.

1. The Academic year of the School of Science includes the Michaelmas Term, extending from October to the 23rd of December; and the Easter Term from January to the 18th of April. The Report now presented for the current year embraces the Easter Term of 1885-6, and the Michaelmas Term of 1886-7, during which the work of the School has been diligently prosecuted in the Lectures, Laboratories, and in the Field-work in relation to Geology, Surveying and Levelling.

2. The following is a classified list of the students in attendance during the above-named terms of the current year, including the students pursuing special subjects in the full courses taught in the School of Science, and also those proceeding to a Degree in Civil Engineering, in Arts, or in Medicine, in the University :—

<i>Engineering—</i>		Easter.	Michaelmas.
Regular students.....		48	45
Special ".....		14	9
<i>Mathematics and Physics—</i>			
Students in Engineering.....		57	48
<i>Chemistry—</i>			
Students of University College.....		91	79
Regular students in Engineering.....		48	45
" " Chemistry.....		2	5
" Medical students.....		47	90
<i>Biology—</i>			
Students of University College.....		31	29
<i>Mineralogy and Geology—</i>			
Regular students of University College.....		103	117
" " in Engineering.....		17	25

3. The fees of students proceeding to a Diploma of the School of Practical Science in the Department of Engineering, or availing themselves of the special training in Applied Chemistry, during the year 1885-6, and paid in to the Provincial Treasurer, have amounted to \$1,490, being an increase of \$525, as compared with the last year's fees.

4. The work now carried on in the School of Science, under the Professors of Engineering and Applied Chemistry, in conjunction with the instructions given in Mathematics and Physics, and in the Natural Sciences, by Professors and Lecturers of University College, has greatly extended the advantages enjoyed by students of the School. Among the special facilities provided since the last report, is a work-shop attached to the Department of Physics in University College, furnished with useful appliance for practical instruction. The appointment of Fellows in the various Departments, both of the School and College, has augmented the facilities for necessary sub-division of the work in various departments, and thereby greatly increased the advantages enjoyed by both institutions. But the benefits to be derived from this have thus far been only partially available in those branches taught in the School of Science building, owing to the want of adequate lecture rooms. The attention of the Minister of

Education is earnestly requested to the necessity for greatly extended accommodation, if the School of Science is to be maintained in efficiency, and to prove adequate for the annually increasing number of students.

The following constitute the teaching staff of the School, including the Fellows of the year 1885-6, in the several departments.—

J. Galbraith, M.A., Assoc. M. Inst. C.E., Professor of Engineering.
 E. W. Stern, Esq., Fellow.
 W. H. Ellis, M.A., M.D., Professor of Applied Chemistry.
 W. H. Pike, M.A., Ph. D., Professor of Chemistry.
 N. McEachern, B.A., Fellow.
 E. J. Chapman, Ph. D., LL.D., Professor of Mineralogy and Geology.
 H. R. Wood, B.A., Fellow.
 J. London, M.A., Professor of Mathematics and Physics.
 J. H. McGeary, B.A., Fellow in Mathematics.
 T. Mulvey, B.A., Fellow in Physics.
 R. Ramsay Wright, M.A., B. Sc., Professor of Biology.
 A. B. McCallum, B.A., Fellow.
 D. Wilson, LL.D., F.R.S.E., Professor of Ethnology.

5. Departments of Instruction.

(1) *Engineering.*

The number of regular students who presented themselves for examination in the Easter Term of 1886 was as follows:—

First year	25	were	examined	and	17	passed.
Second "	10	"	"	"	9	"
Third "	7	"	"	"	5	"
Total	42	"	"	"	31	"

The number of graduates of the School is as follows:—

1881	1
1882	3
1883	3
1884	5
1885	5
1886	5
Total	22

The majority of the graduates are now engaged in active professional practice in Canada.

The number of students in this Department now in attendance is as follows:—

Regular Students—

First year	20
Second "	17
Third "	8
Total	45

Special Students—

Mechanical Engineering	6
Surveying	3
Total	9

Total number of students in the Engineering Department, 59.

The graduates of the school who have proceeded to the Degree of C.E. in the University of Toronto are :—

	Diploma of School.	Degree of C.E.
J. E. Morris	1881	1885
J. H. Kennedy	1882	1886

The urgent appeal for the establishing of a Fellowship in the Department of Engineering having met with a favorable response from the Government, Mr. E. W. Stern was appointed Fellow, and satisfactorily discharged the duties throughout the academic year. At its close he resigned his Fellowship to allow of his resuming the practice of his profession, and Mr. D. Burns, who took the Diploma of the school in 1883, and had been subsequently employed in the water-works department of the City of Toronto, has been appointed in his place.

The duties assigned to the Fellow consist mainly in assisting the Professors in giving practical instruction in the drafting room and in the field. All students who are not occupied with lectures are required to work in the drafting room at all spare hours between 9 a.m. and 5 p.m. It is absolutely necessary, with a view to the useful employment of this time, that they should be under constant superintendence. The appointment of a Fellow has in some degree secured this. Yet even now it frequently happens that, while the Professor is engaged in lecturing, the Fellow has to superintend the work of students carried on in two other rooms, with results far from satisfactory, as an adequate fulfilment of efficient oversight.

The assistance provided to the Professor of Engineering by the appointment of a Fellow, while adding greatly to the general efficiency of the department, has in no degree diminished the amount of work devolving on the Professor, as will be seen from the following list of the subjects on which he is required to lecture :—

I. Mechanical.

Applied Statics and Dynamics,
Strength of Materials and Theory of Construction.
Hydraulics.
Thermodynamics and Theory of the Steam Engine.
Principles of Mechanism and Machine Design.

II. Geometrical.

Geodesy and Practical Astronomy.
Surveying.
Descriptive Geometry (including the principles of mechanical drawing, map projections, topography, stone cutting, lineal perspective, shades and shadows, etc.)
Special Trigonometry.

In addition to the amount of lecturing here specified, and the practical work which together occupy both Professor and Fellow for seven hours of each day, a large amount of correspondence and routine business has to be attended to. In view of the disproportionate amount of work thus thrown upon a single instructor, the Board beg leave to invite the special notice of the Minister of Education to the requirements of this important department, as, with the annual increase of the number of students entering

the School of Science, it must be obvious that the above requirements are more than can be undertaken by any single professor, either in justice to himself or to his students. They submit herewith, for the consideration of the Minister, the following recommendation of Professor Galbraith, with a view to providing adequate teaching in the several branches of this Department :—

“ The Professor of Engineering would strongly urge the appointment of an Assistant Professor to take the subjects under head II. (Geometrical). The requirements are that the person appointed shall be a good mathematician and draftsman, and also a practical surveyor. His mathematics must include a thorough knowledge of the Differential and Integral Calculus. There is no other Engineering School in the world where such a variety of work is thrown on one professor as in the School of Science.

(2) *Mathematics and Physics.*

The instruction in the various branches included in this Department is carried on by the Professor of Mathematics and Physics in University College, in co-operation with the Mathematical Tutor and the Demonstrator of Physics, with the assistance of two Fellows. Since the last Report of the Board, increased facilities for practical instruction, which they were then looking forward to, have been realised, in the provision of a well-equipped workshop, available for the students of the school. This has been fitted up in University College, and furnished with a gas-engine, lathes, and other useful appliances of special value to the students in Civil and Mechanical Engineering. Important progress has been made in supplying the deficiencies in the philosophical apparatus, especially with a view to the requirements of a special course of instruction in electrical engineering. By means of a fund liberally contributed by friends of the College and the School of Science, supplemented by a grant from the University Board of Trustees, valuable additions have now been made to the Physical Laboratory, especially in the branch of Static Electricity.

(3) *Chemistry.*

In the Department of Applied Chemistry Dr. Ellis reports that the accommodation in his laboratory is quite inadequate for the number of students now working there. The arrangement of tables, with cupboards and drawers, each intended for a single student, now falls so far short of the requirements of the school that each compartment is shared among four students, and it is a frequent cause of unavoidable confusion, greatly impeding the work of both the teacher and the student. Additional accommodation is urgently needed.

(4) *Biology.*

Through a liberal grant from the University Board of Trustees the Biological Laboratories have been furnished with further appliances which largely increase the facilities for practical teaching now available for students of the School of Science. The Professor has, however, been unable to carry out his purpose of forming evening classes, in accordance with the provisions of the Act, owing to the want both of suitable accommodation and of the necessary illustrative apparatus. He applied during the past year for a special grant to be expended on the needful apparatus, and will offer such instruction whenever the required means are placed at his disposal.

For reasons referred to in a former report, the classes in Biological subjects, specially formed to meet the wants of medical students, were temporarily suspended. As, however, medical students constantly apply for instruction in those subjects, the Board considers it desirable to renew the former facilities during the session of 1887-8. The time of the Professor of Biology is now so much occupied with the various claims of his department that it will not be possible for him to personally undertake the whole of the proposed additional work of instruction. It is therefore recommended by the Board that the fees charged to students for instruction in those branches of biological study specially designed for the medical students be appropriated for the purpose of securing the necessary assistance.

(5) *Mineralogy and Geology.*

By means of an appropriation placed at the disposal of the Professor by the Board of the Trustees of the University, some indispensable additions have been made to the apparatus of the Mineralogical Laboratory, but chiefly in the form of instruments for the use of students to replace worn out material. Considerable additions are still required before it can be reported as adequately equipped. The Geological Department is specially in need of requisite illustrations and appliances for efficient teaching in Palæontology and Mining Geology.

(6) *Ethnology.*

Some interesting additions have been made to the collection, available for illustrating this branch of study, since the last report; and arrangements have been entered into which, it is hoped, will largely increase the Department illustrative of the native races, and the primitive arts of the Dominion.

(7) *Architecture.*

Looking to the full and efficient equipment of the school in all essential requirements, the Board invite the consideration of the Ministers to the desirableness of adding to the instruction now provided, a new department of Architecture. Nearly all the important branches required for a well-trained architect, in construction, strength of material, acoustics, sanitary engineering, etc., are already taught in the school. It only requires the addition of instruction in the branch of architectural drawing. With this addition, if proper accommodation for classes is secured, the additional fees would probably cover the charges involved.

(8) *Insufficient Lecture Rooms.*

Attention has been repeatedly called to the annually increasing impediments to the proper carrying on of the work of the School of Science, owing to the totally inadequate amount of accommodation, and the Board were encouraged to expect such an appropriation by the Legislature for an extension of the present building as would in some degree meet the most pressing requirements.

Owing to the fact that only one lecture room is available for classes for special lectures in the several departments of Engineering, Chemistry, Biology, and Mineralogy and Geology, the unavoidable defacement of illustrative tabular work on the blackboard by successive lecturers, is felt to be a serious impediment, involving much waste of labor and loss of time. The pre-occupation of the room, also, by one lecturer, at the very time when it is needed for the preparation of drawings or tabular work for a future class, greatly interferes with the successful prosecution of various branches of instruction. But now, in addition to the difficulties here referred to, the numbers in attendance have so largely increased that the lecture room is altogether too small for their accommodation. In a letter from the Professor of Mineralogy and Geology, addressed to the Chairman of the Board, during the present term, he says:—"The small lecture room that I had at one time exclusively for my own classes, is now shared by nearly all the professors and teachers in the school, so that it is not possible to make preparations for lectures, in the way of putting up drawings and diagrams, writing out tables, etc., on the blackboard, arranging specimens and apparatus, etc., as the room is constantly occupied. But that is not the worst. The room will not hold conveniently more than forty-five students. If more than that number be crowded in, the students cannot take notes, or sit with any comfort. My students, of the second year, now amount to at least seventy. It is not possible to get this crowd into the room; although, in addition to the regular seats, I have had small stools placed in every available spot; and if you will visit the school on any Monday or Wednesday afternoon from 3 to 4 o'clock, you will find many students sitting or standing in the hall, around the open door."

The Professor also draws attention to the great hindrance to efficient work arising from the want of adequate accommodation in his laboratory, so that the students have to be divided into three or more sets, and the same work repeated several times in the day,

to the great increase of labor and waste of time. In spite of extended hours, and evening work, the Professor complains that the progress of the students is impeded from this cause.

The Professor of Engineering is no less urgent in his complaints of impediment to instruction in all branches of his work owing to the want of adequate accommodation. During the past year the only room available for the meetings of the Board has been given up as an additional room for engineering drawing. But this is a mere temporary make-shift. The additional rooms urgently required for this department are a larger drafting room and a new lecture room. Owing to the want of the latter, lectures have to be daily given in the crowded drafting rooms to one class of students, at the time when another class are engaged there in drawing, to the inevitable annoyance and distraction of the latter. A large room is also required on the ground floor, for use as an engineering laboratory. In order to render this available for essential requirements of the school, it should be furnished with a machine for testing the strength of materials, and also with an experimental steam engine for conducting engine tests. The ultimate benefits resulting to the country from the practical training thus secured for a body of native and home-trained engineers, will amply repay any costs incurred.

(9) *Fees of Professional Students.*

In view of the requirements set forth in previous statements, and the obvious necessity of so extending the facilities and teaching powers of the school, as to enable it to meet the annually increasing demands on its present inadequate resources, the Board very respectfully submit to the Minister of Education, that, with adequate accommodation for large professional classes in the several departments, such fees could be charged as would, they believe, ultimately make the school, to a large extent, self-supporting.

(10) *Heating Apparatus.*

They beg leave to recall to the attention of the Minister of Education the serious inconvenience caused by the inadequacy of the heating apparatus in the School of Science building. This has been increasingly felt since the extension of the chemical laboratories, and they were promised that this, as well as other pressing wants, would be supplied during the current year. The annual waste from breakage in the laboratories and the bursting of pipes, on a sudden fall in the temperature, is in itself an urgent reason for the remedy of this defect as speedily as possible.

(11) *Sanitary Requirements.*

The special attention of the Minister is invited to the extremely defective sanitary arrangements of the school, which are such as to endanger health. The regular attendance now, under recent arrangements, of lady students, also requires the provision of separate cloak and toilet rooms for their use.

(12) *Plans for future Extension.*

In conclusion, the Board beg leave to represent to the Minister that the popularity and annually increasing progress of the school reveals the fact that the present building is very defective and inadequate in many ways for the requirements of a Provincial School of Practical Science. They would, therefore, very respectfully submit to the Government that in taking steps to provide the increased accommodation so urgently required, it is most desirable that they should give instructions for the preparation of plans on a scale adequate to the prospective growth of the school, so that anything now done may form part of a scheme to which further additions may be made from time to time, with a view to the ultimate establishment of a School of Practical Science in all respects worthy of the Province of Ontario.

A synopsis of lectures and other details of the work of the school will be found in the prospectus of the year, a copy of which is herewith appended.

All of which is respectfully reported.

DANIEL WILSON.
Chairman.

TORONTO, December 10th, 1886.

ANNUAL REPORT OF UPPER CANADA COLLEGE.

To His Honor, the Honorable John Beverley Robinson, Lieutenant-Governor of the Province of Ontario, and Visitor of Upper Canada College:—

MAY IT PLEASE YOUR HONOR:

The Principal of Upper Canada College begs leave to present to your Honor, as Visitor on behalf of the Crown, the following report for the year ending June 30th, 1886:—

Attendance.

The enrolment of boarders for the year ending June 30th, 1886, was 177; day pupils, 167; total, 344. The average attendance of the school for the same period was 285.5; the per centage of average attendance to total attendance 83 per cent.

[NOTE:—The enrolment for the current session up to Jan. 20th, 1887, is 347; boarders, 160; average daily attendance, 301.2].

The number of masters employed during the school day, 13; number of pupils to a master, on the basis of enrolment, 25; on that of average daily attendance, 22.

Comparative Statement.

	1885-86.	1884-85.	1883-84.	1882-83.
Boarders.....	177	149	129	116
Day pupils.....	167	147	126	127
	<u>344</u>	<u>296</u>	<u>255</u>	<u>243</u>

The Residence of Pupils.

(Session, 1885-86).

	Day pupils.	Boarders.
Algoma and Lake Superior region.....	3
Brant	3
Bruce	1
Carleton	4
Dufferin	2
Durham	5
Grey	5
Haldimand	2
Halton	8
Hastings	8
Huron	6
Lambton	9
Leeds	2
Lincoln	9
Middlesex	4
Norfolk	2
Northumberland	1
Ontario	4
Oxford	1
Peel	3

	Day pupils.	Boarders.
Perth	1
Peterboro	3
Simcoe	10
Stormont..	5
Victoria	2
Welland	2
Wellington	1
Wentworth	25
York	167	17
British Columbia	2
Nova Scotia	9
Quebec	7
North-West Territory	4
Bermuda	1
United States	6
	167	177

Subjects of Study.

No. in	English (including Grammar, Literature, Composition, etc) ...	344
"	History	344
"	Geography	344
"	French	316
"	German	46
"	Latin	276
"	Greek	79
"	Arithmetic	344
"	Algebra	212
"	Euclid	212
"	Chemistry	67
"	Physics	67
"	Book-keeping	54
"	Penmanship and Commercial Forms	306
"	Military Drill and Gymnastics	252

Music, Drawing, Phonography and Fencing, are taught after hours, for which an extra fee is paid by the pupils.

The school gymnasium has been thoroughly renovated, and better facilities for physical culture have been provided; the course in gymnastics and military drill has been enlarged, and a rifle corps of 80 members has been organized among the boys.

The school is well supplied with maps, globes, chemical and physical apparatus and physiological models and charts. The Library contains upwards of 1,000 volumes, and the reading room, which is managed in connection with the gymnasium, is well furnished with daily and weekly Canadian newspapers and with the best illustrated magazines and papers of England and America.

The Literary and Debating Society has been revived, and *The College Times*, a semi-monthly school paper, for circulation among the pupils and ex-pupils, and edited by the boys of the Sixth Form, has resumed publication.

For the encouragement of physical culture the College organizations for Cricket, Football and Tennis, which have been special features of the school for upwards of 50 years, are kept in a state of efficiency. The Games Committee has charge of all competitive athletic sports; the annual competition was held on May 12th, at which prizes, provided by the Games Committee, were awarded.

PUPILS WHO LEFT DURING THE YEAR.

- 13 entered University of Toronto.
 - 6 " the Law Society.
 - 6 " Trinity College—Faculty of Medicine.
 - 5 " Military College, Kingston.
 - 5 " Department of Engineering.
 - 36 " mercantile life.
 - 10 became occupied with agriculture.
 - 17 left for other pursuits.
-

THE MASTERS.

- Principal—George Dickson, M.A.
- First Classical Master—William Wedd, M.A.
- First Mathematical Master—James Brown, M.A.
- Second Classical Master and Superintendent of the College Boarding Houses—John Martland, M.A.
- French and German Master—W. H. Fraser, B.A.
- Second Mathematical Master and Assistant Master in College Boarding House—George B. Sparling, M.A.
- Assistant Classical Master and Resident Assistant Master in the Supplementary Boarding House—William Jackson, Esq.
- Assistant Mathematical Master, Lecturer in Chemistry, and Resident Assistant Master in College Boarding House—A. Y. Scott, B.A.
- Assistant English Master and Resident Assistant Master in College Boarding House—G. Gordon, B.A., M.D.
- Assistant English Master and Assistant Master in the Supplementary Boarding House—H. Brock, Esq.
- Writing and Commercial Master—A. Stevenson, B.A.
- Assistant Modern Language Master—Joseph Blackstock, B.A.
- Drawing—R. Baigent, Esq.
- Music Master—Theodore Martens, Esq.
- Gymnastics, Fencing and Drill—Sergeant Parr.

(Signed) GEORGE DICKSON, M.A.,
Principal.

TORONTO, December, 1886.

14

DETAILED REPORT

OF THE

INSPECTOR OF INSURANCE,

1886.

Printed by Order of the Legislative Assembly.



Toronto :

PRINTED BY WARWICK & SONS, 26 AND 28 FRONT STREET WEST,
1887.

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DETAILED REPORT
OF THE
INSPECTOR OF INSURANCE,
FOR THE
YEAR ENDING 31ST DECEMBER, 1885.

*The Honourable A. McL. Ross, M.P.P.,
Provincial Treasurer, Toronto.*

SIR,—Having previously submitted, in printed form, an Abstract Report of Insurance Companies' Statements for the year ending 31st December 1885, I have now the honour to submit the Detailed Report as provided by the Statute 42 Vic., chap. 25.

This Report includes :—

- I. Detailed Statements of Joint Stock Life Insurance Companies.
- II. Detailed Statements and Synoptical Tables of Joint Stock Fire Insurance Companies.
- III. Detailed Statements and Synoptical Tables of Mixed Mutual Fire Insurance Companies.
- IV. Detailed Statements and Synoptical Tables of Strictly Mutual Fire Insurance Companies.
- V. Comparative Summary of Assets and Premium Notes of Mutual Companies of all Classes.
- VI. Fire-Tables for 1885 ; showing
 - (a) Localities, Months of Occurrence, and Total Claims paid ;
 - (b) Localities, Causes and number of Losses ; and
- VII. Register of Insurance Companies brought up to 2nd February, 1887.

I have the honour to be,

Sir,

Your obedient servant,

J. HOWARD HUNTER,

Inspector.

JOINT STOCK FIRE INSURANCE COMPANIES.

YEAR ENDING 31st DECEMBER, 1885.

JOINT STOCK FIRE INSURANCE COMPANIES.

YEAR ENDING 31st DECEMBER, 1884.

[FOR HAND-IN-HAND INSURANCE COMPANY, MUTUAL AND STOCK,
AND MILLERS' AND MANUFACTURERS' INSURANCE COMPANY,
STOCK AND MUTUAL,

See under "MIXED MUTUAL COMPANIES."]

MERCANTILE FIRE INSURANCE COMPANY.

HEAD OFFICE, WATERLOO.

Commenced Business 1st November, 1875.

President—I. E. BOWMAN.

Secretary—P. H. SIMS.

Authorized Capital, \$500,000.

Subscribed Capital, \$200,000. Paid up, \$20,000.

Deposited with Treasurer of Ontario, \$20,100.

Statement for the year ending 31st December, 1885.

ASSETS.

Mortgages.

Location of Property Covered.	Cash Value of Property.	Amount of Mortgages.
Wellington County	\$19,900 00	\$13,425
Waterloo "	71,920 00	30,630
Bruce "	8,600 00	4,700
Huron "	3,000 00	1,200
	<u>\$103,420 00</u>	<u>\$49,955 00</u>
Cash value of debentures		8,500 00
Interest due, accrued and unpaid		1,804 49
Cash on hand in head office		\$4,432 23
Cash deposited at Molson's Bank, Waterloo		12,635 18
		<u>17,067 41</u>
Agents' balances		4,626 61
Bills receivable, less than one year overdue		1,935 83
Total assets		<u>\$83,889 34</u>

LIABILITIES.

Amount of claims for losses adjusted but not due	\$1,776 63
Unearned premiums, being 50 per cent. of gross premiums	47,446 73
Dividends declared, but not yet due	2,000 00
Total liabilities, except capital stock	\$51,223 36
Capital stock paid up in cash	\$20,000 00

INCOME.

Gross premiums received in cash	\$88,472 28
Received for interest from all sources	3,169 19
“ carpenters’ risks, transfer fees, and extra premiums	659 58
Total income	\$92,301 05

EXPENDITURE.

Net amount paid during the year for losses occurring in years prior to 1885	\$732 00
Amount paid for losses occurring during the year 1885	41,883 63
	\$42,615 63
Amount paid for reinsurance premiums	5,075 28
Amount paid for dividends	2,000 00
Amount paid for refund and cancelled premiums	4,935 17

Expense Account :

Commission and brokerage	\$14,517 02
Salaries, fees, and all other charges of officials for the year	4,321 30
Travelling expenses and adjusting losses	1,066 15
Fuel, light, and cleaning	60 47
Printing and advertising	719 70
Express charges	69 81
License fee and statutory assessment	233 33
Rent	238 32
Commercial agency	50 00
Books and stationery	376 95
Bank exchange	135 43
Postage and telegraphing	696 30
Taxes	34 47
Canadian Fire Underwriters’ Association	102 95
Sundries	94 63
	\$22,716 83
Total expenditure	\$77,342 91

• MISCELLANEOUS.

	No. of Policies.	Amount.
Policies in force December 31, 1884	5,933	\$ c. 5,911,254 00
Taken during the year 1885—new and renewed.....	5,756	5,961,556 00
Total.....	11,689	11,662,810 00
Deduct expired and cancelled during 1885	4,527	4,591,555 00
In force at Dec. 31st, 1885.....	7,162	7,271,255 00
Of which was reinsured		364,460 00
Net risks carried by Company, Dec. 31st, 1885		6,906,795 00

LIST OF STOCKHOLDERS.

NAME.	Residence.	Amount Subscribed.	Amount paid up in cash.
		\$ c.	\$ c.
Allenby, F. G.....	Galt	4,000 00	400 00
Bowman, J. E.....	Waterloo.....	12,000 00	1,200 00
Bowers, Cyrus.....	Berlin.....	5,000 00	500 00
Bowman, I. D.....	".....	1,000 00	100 00
Bricker, Jacob.....	Waterloo.....	2,000 00	200 00
Ballantyne, Thomas.....	Stratford.....	1,000 00	100 00
Bowlby, D. S., M.D.....	Berlin.....	10,000 00	1,000 00
Boye, Ernest.....	Baden.....	1,000 00	100 00
Biscoe, Frederick.....	Guelph.....	1,000 00	100 00
Bellinger, Theo.....	Waterloo.....	500 00	50 00
Bowman, J. S.....	Arthur.....	500 00	50 00
Briethaupt, L.....	Berlin.....	1,200 00	120 00
Colquhoun, F.....	Waterloo.....	3,500 00	350 00
Colquhoun, I. Ledellia.....	Waterloo.....	2,000 00	200 00
Cameron, Wm.....	Port Elgin.....	500 00	50 00
Caw, Wm., M.D.....	Parkhill.....	1,000 00	100 00
Doering, Geo.....	Wellesley.....	3,100 00	310 00
Day, T. J.....	Guelph.....	1,000 00	100 00
Doering, John E.....	Wellesley.....	500 00	50 00
Dickson, Wm.....	Parkhill.....	500 00	50 00
Erb, E.....	Preston.....	1,000 00	100 00
Eccles, Daniel.....	Watford.....	500 00	50 00
Farrish, Wm.....	Rockwood.....	1,000 00	100 00
Fennell, John.....	Berlin.....	500 00	50 00
Fletcher, Ann, Mrs.....	Rockwood.....	3,200 00	320 00
Fink, Paul.....	Waterloo.....	1,000 00	100 00
Gibbs, John.....	Parkhill.....	2,000 00	200 00
Gissing, F. J.....	Toronto.....	1,000 00	100 00
Hughes, J. B.....	Waterloo.....	2,000 00	200 00
Hilliard, Thomas.....	".....	1,000 00	100 00
Hendry, Charles.....	".....	5,000 00	500 00
Hunter, Wm.....	Guelph.....	2,000 00	200 00
Hay, W. G.....	Listowel.....	1,000 00	100 00
Hough, James.....	Guelph.....	1,000 00	100 00
Hogg, David N.....	".....	5,000 00	500 00

LIST OF STOCKHOLDERS—Continued.

NAME.	Residence.	Amount Subscribed.	Amount paid up in cash.
		\$ c.	\$ c.
Innes, James	Guelph	2,000 00	200 00
Irwin, John	Strathroy	1,000 00	100 00
Jackson, Henry F. J.	Brockville	5,000 00	500 00
Jaffray, R.	Galt	1,000 00	100 00
Killer, Nicholas	Waterloo	1,000 00	100 00
Kaufman, S.	Washington, Ont.	5,000 00	500 00
Kumpf, C.	Waterloo	1,000 00	100 00
Kranz, Hugo	Berlin	1,000 00	100 00
Livingston, James	Baden	2,000 00	200 00
Lockie, James	Waterloo	2,500 00	250 00
Lautenschlager, P.	Berlin	2,000 00	200 00
Moore, George	Waterloo	3,000 00	300 00
Miller, Alex.	Berlin	1,000 00	100 00
Melvin, Robert	Guelph	7,000 00	700 00
Massie, James	Toronto	2,000 00	200 00
Merner, Fred	New Hamburg	1,000 00	100 00
Morton, W., M.D.	Wellesley	500 00	50 00
Martin, Wm. John	Chatham	3,000 00	300 00
Oelschlager, Wm.	Berlin	5,000 00	500 00
Peppers, Joseph	Listowel	500 00	50 00
Petrie, A. B.	Guelph	3,000 00	300 00
Reinelt, John G.	Wellesley	2,000 00	200 00
Ruppel, John	Elmira	500 00	50 00
Snyder, J. B.	St. Jacob's	10,000 00	1,000 00
Snider, E. W. B.	"	6,000 00	600 00
Shuh, John	Waterloo	2,000 00	200 00
Snider, John B.	"	2,000 00	200 00
Snider, Henry, (Estate of) ..	Bloomington	2,000 00	200 00
Snider, Simon	Waterloo	3,000 00	300 00
Sims, P. H.	"	3,000 00	300 00
Snider, Wm.	"	2,500 00	250 00
Stewart, Wm.	Guelph	1,000 00	100 00
Scott, John A.	Stratford	1,000 00	100 00
Staebler, J. M.	Berlin	1,000 00	100 00
Snider, Fred	"	1,000 00	100 00
Stuebing, Wm.	Waterloo	500 00	50 00
Sawtell, R. W.	Woodstock	1,000 00	100 00
Scott, J. W.	Listowel	1,000 00	100 00
Shields, James	"	1,000 00	100 00
Socon, John	Guelph	500 00	50 00
Springer, M.	Waterloo	1,000 00	100 00
Trow, James	Stratford	5,000 00	500 00
Towner, George	Listowel	1,000 00	100 00
Walden, J. W., M.D. (Estate of) ..	Waterloo	3,000 00	300 00
Winger, Peter	Elmira	1,000 00	100 00
Wilkes, Clara M.	Brantford	1,000 00	100 00
Wilkes, Alfred J.	"	1,000 00	100 00
Wright, G. W., M.D.	Berlin	1,000 00	100 00
Wright & Durand	London	500 00	50 00
Webb, J. H., M.D.	Waterloo	4,000 00	400 00
Young, Wm.	"	11,500 00	1,150 00
Zoeger, John	Newton	500 00	50 00
Zinkann, J. N.	Lisbon	500 00	50 00
Total		\$200,000 00	\$20,000 00

QUEEN CITY FIRE INSURANCE COMPANY.

HEAD OFFICE, TORONTO.

Commenced business 1st July, 1871.

President—W. H. HOWLAND.

Secretary—THOMAS WALMSLEY.

Authorized Capital, \$100,000.

Subscribed Capital, \$100,000. Paid up, \$50,000.

Securities deposited with Treasurer of Ontario, \$10,000.

ASSETS.

Value of real estate held by Company, being land and building on the west side of Church Street, Toronto, where the head offices of the Company are situated..... \$61,172 60

Mortgages :—

Scarboro' Township	\$3,000 00	
Toronto City	48,271 12	
		<hr/>
Total amount of loans secured by mortgage		51,271 12
Secured loans		1,000 00
Deposited with the Dominion Bank, Toronto		8,032 82
Agents' balances		1,770 71
Interest accrued and unpaid on all loans as above		3,144 40
Accrued rents		2,647 16
Other assets		2,154 40
		<hr/>
Total assets		<u>\$131,193 21</u>

LIABILITIES.

Unpaid losses	2,323 64
Unearned premiums, being 50 per cent. of gross premiums	9,014 18
	<hr/>
Total liabilities, except capital stock	11,337 82
	<hr/>
Capital stock paid up in cash	<u>50,000 00</u>

INCOME.

Gross premiums received in cash	\$14,504 70
Received for interest and dividends on stocks and all other sources	3,800 67
Rents	3,305 13
Total income	<u>\$21,610 50</u>

EXPENDITURE.

Amount paid during the year for losses occurring in years prior to the year 1885	\$19 40	
Amount paid for losses occurring during the year 1885	7,254 26	
		<u>\$7,273 66</u>
“ re-insurance premiums		2,523 17
Amount of dividends paid during the year		2,500 00
Paid for commission, or brokerage	\$1,197 46	
“ salaries, fees, and all other remuneration of officials.	3,615 00	
“ rent	500 00	
“ vote to president at annual meeting	1,000 00	
“ statutory assessment and license fee	116 76	
“ books and stationery	23 87	
“ printing and advertising	129 27	
“ legal expenses	10 05	
“ assessment Board of Underwriters	25 00	
“ telephone	19 18	
“ all other expenses	24 83	
		<u>6,661 42</u>
Total expenditure		<u>18,958 25</u>

MISCELLANEOUS.

FIRE RISKS.	No.	Amount.
		\$ c.
Policies in force (gross) at December 31st, 1884	1,473	2,047,242 00
Taken during the year 1885, new and renewed	1,236	1,623,360 00
Total	2,709	3,670,602 00
Deduct expired and cancelled during 1885	1,283	1,496,158 00
Gross in force at 31st December, 1885	1,476	2,175,444 00
Of which was re-insured		471,607 00
Net risks carried by Company December 31st, 1885		1,703,837 00

LIST OF STOCKHOLDERS.

NAME.	Residence.	Amount sub-	Amount paid
		scribed.	up in Cash.
		\$ c.	\$ c.
Austin, James	Toronto	2,000 00	1,000 00
Badenach, William	"	1,000 00	500 00
Close, P. G.	"	1,000 00	500 00
Copp, Clark & Co.	"	1,000 00	500 00
Downey, J.	"	1,000 00	500 00
Elliott, R. W.	"	2,500 00	1,250 00
English, C. E.	"	12,500 00	6,250 00
Harvey, A.	"	500 00	250 00
Hessin, William	"	500 00	250 00
Howland, O. A. (in trust)	"	4,000 00	2,000 00
Howland, W. H.	"	10,000 00	5,000 00
MacLennan, James	"	5,000 00	2,500 00
MacLennan, James } Trustees	"	5,000 00	2,500 00
Walmsley, Thomas }	"		
Howland, W. H.	"		
Macnab, John	"	3,000 00	1,500 00
McWilliams, W. G.	"	500 00	250 00
Roaf, J. R.	"	1,500 00	750 00
Scott & Walmsley	"	25,500 00	12,750 00
Scott, Hugh	"	5,000 00	2,500 90
Scott, James	"	3,000 00	1,500 00
Scott, J. G.	"	1,000 00	500 00
Strathy, H. H.	Barrie	1,000 00	500 00
Walmsley, William	Toronto	1,000 00	500 00
Walmsley, Thomas	"	10,000 00	5,000 00
Watson, James	"	1,000 00	500 00
Wood, A. T.	Hamilton	1,500 00	750 00
Total		100,000 00	50,000 00

RECAPITULATION

OF

ASSETS, LIABILITIES, INCOME AND EXPENDITURE

OF ALL JOINT STOCK FIRE INSURANCE COMPANIES.

JOINT STOCK FIRE INSURANCE COMPANIES.

ASSETS FOR YEAR ENDING 31ST DECEMBER, 1885.

NAME OF COMPANY.	Real Estate.	Bonds, Mortgages and other Investments.	Interest accrued.	Rents.	Cash.	Agents' Balances.	Bills Receivable.	Other Assets.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
* Mercantile.....	.....	58,455 00	1,804 49	.....	17,067 41	4,626 61	1,935 83	.....	83,889 34
* Queen City	61,172 60	52,271 12	3,144 40	2,647 16	8,032 82	1,770 71	.....	2,154 40	131,193 21
Total	61,172 60	110,726 12	4,948 89	2,647 16	25,100 23	6,397 32	1,935 83	2,154 40	215,082 55

* Government Deposits as follows :--Mercantile, \$20,100; Queen City, \$10,000.

LIABILITIES FOR YEAR ENDING 31ST DECEMBER, 1885.

NAME OF COMPANY.	Unpaid Losses.	Unearned Premiums calculated at 50 per cent.	Dividends.	Total Liabilities except Capital Stock.	Paid-up Capital Stock.	Grand Total of Liabilities.	Number of Policies in force.	Total Amount at Risk.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.		\$ c.
Mercantile.....	1,776 63	47,446 73	2,000 00	51,223 36	20,000 00	71,223 36	7162	7,271,255 00
Queen City.....	2,323 64	9,014 18	.....	11,337 82	50,000 00	61,337 82	1476	2,176,444 00
Total	4,100 27	56,460 91	2,000 00	62,561 18	70,000 00	132,561 18	8638	9,446,699 00

JOINT STOCK FIRE INSURANCE COMPANIES.

INCOME FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Gross Premiums.	Interest and Dividends.	Rents.	From other sources.	Total Income.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mercantile	88,472 28	3,169 19	.....	659 58	92,301 05
Queen City	14,504 70	3,800 67	3,305 13	.....	21,610 50
Total	102,976 98	6,969 86	3,305 13	659 58	113,911 55

EXPENDITURE FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Dividends.	Losses.	Re-insurance.	Refunds, and Abatements.	EXPENSES OF MANAGEMENT.				Total Expenditure.
					Commission.	Salaries.	All other Expenses.	Total.	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mercantile	2,000 00	42,615 63	5,075 28	4,935 17	14,517 02	4,321 30	3,878 51	22,716 83	77,342 91
Queen City	2,500 00	7,273 66	2,523 17	.....	1,197 46	4,615 00	848 96	6,661 42	18,958 25
Total	4,500 00	49,889 29	7,598 45	4,935 17	15,714 48	3,936 30	4,727 47	29,378 25	96,301 16

MIXED MUTUAL AND CASH SYSTEM COMPANIES.

YEAR ENDING 31ST DECEMBER, 1885.

MIXED MUTUAL AND CASH SYSTEM COMPANIES.

YEAR ENDING 31st DECEMBER, 1885.

GORE DISTRICT MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, GALT.

Commenced business 16th October, 1880.

President—HON. JAMES YOUNG, M.P.P.

Secretary—R. S. STRONG.

Unassessed premium note capital, \$123,239.90.

Securities deposited with Treasurer of Ontario, par value, \$7,000; estimated market value, \$7,150.00.

[On February 9th, 1886, this deposit was increased to \$20,000.]

ASSETS.

Loans secured by mortgages	\$41,310 00
Market value of shares, bonds, debentures and securities other than the foregoing	16,905 00
Actual cash on hand at head office.....	\$910 87
Cash on deposit to the Company's credit, not drawn against in the following chartered banks:	
Merchants' Bank, agency at Galt	16,954 01
Bank of Commerce "	14,487 60
	<u>32,352 48</u>
Cash in agents' hands acknowledged by them to be due and considered good	2,429 73
Amount unpaid of assessments levied during 1885.....	345 67
Amount unpaid of premium notes in force, after deducting all payments thereon and assessments levied	123,239 90
Less residue of premium notes given by the Company for re-insurance	<u>1,333 57</u>
Net premium notes	121,906 33
Amount of interest accrued	<u>1,692 97</u>
Total assets	<u><u>\$216,942 18</u></u>

LIABILITIES.

Amount of losses supposed on reports	\$100 00	
" resisted	822 46	
		<u>\$922 46</u>
Amount required to reinsure all outstanding risks taken on the cash system being fifty per cent. of gross premiums on all cash system policies in force at 31st December, 1885.....		23,587 33
Total liabilities		<u><u>\$24,509 79</u></u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$970 97	
Cash received as first payments, being part payment of premium notes ...		\$11,995 77
" for assessments levied in 1885		25,448 82
" " " years prior to 1885.....		1,401 88
" for premiums on cash system		33,241 09
" for interest		3,115 76
" from transfer fees.....	90 15	
" for extra premiums	275 02	
" for re-insurance claims	969 34	
		<u>1,334 51</u>
Total receipts		<u><u>\$16,537 83</u></u>

EXPENDITURE.*Expenses of Management:*

Amount paid for commission to agents	\$8,269 03	
" law costs	236 00	
" fuel and light	47 66	
" investigation and adjustment of claims	139 53	
" statutory assessment or certificate	222 00	
" printing, stationery and advertising....	419 13	
" rent and taxes.....	475 00	
" salaries, directors' and auditors' fees....	5,829 03	
" travelling expenses.....	570 52	
" postage, telegrams and express	593 11	
Expenses of management (<i>carried forward</i>).....		<u>\$16,801 01</u>

Expenses of management (<i>brought forward</i>).....	\$16,801 01
<i>Miscellaneous Payments :</i>	
Cash paid for losses which occurred during 1885.....	\$30,690.41
“ “ “ “ prior to 1885.....	2,100.00
	<hr/>
“ “ reinsurance	\$32,790 41
“ “ rebate, abatements and returned premiums.....	4,942 02
“ “ bonus to agents.....	1,275 87
“ “ incidentals.....	1,866 59
	174 98
Total expenditure.....	<hr/> <u>\$57,850 88</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Two years.	Three years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
Mutual.....	7,960 00	1,800 00	2,175,128 01	2,184,888 01
Cash.....	1,238,643 33	.....	3,076,207 40	4,314,850 73
Total.....	1,246,603 33	1,800 00	5,251,335 41	6,499,738 74
<i>Reinsured.</i>				
Mutual.....	23,233 33	.....	.....	.....
Cash.....	260,522 36	.....	.....	.....
Total.....	283,755 69	.....	.....	283,755 69
Net risks carried by Company, Dec. 31st., 1885.....	.....	.....	.....	6,215,983 05

MOVEMENT IN RISKS.

	Number.	Amount.
<i>Mutual System.</i>		
Policies in force 31st December, 1884.....	1,486	\$ 1,962,764 00
“ new and renewed during 1885.....	701	970,103 00
Gross number during 1885.....	2,187	2,932,867 00
Less expired and cancelled in 1885.....	575	747,978 99
Net risks in force on mutual system, 31st December, 1885.....	1,612	2,184,888 01
<i>Cash System.</i>		
Policies in force 31st December, 1884.....	4,709	4,401,657 90
“ new and renewed during 1885.....	1,745	1,827,267 88
Gross number during 1885.....	6,454	6,228,925 78
Less expired and cancelled in 1885.....	1,942	1,914,075 05
Net risks in force on cash system, 31st December, 1885.....	4,512	4,314,850 73

BUSINESS TRANSACTED:

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	One year risks.	Two year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	800 00	27 00	179,284 00	180,111 00
Amount of all premium notes, after deducting all payments thereon and assessments levied	579 60	19 35	122,640 95	123,239 90
Amount of premium notes received during the year 1885.....	452 00	12 00	78,718 00	79,182 00
<i>Reinsurance.</i>				
Amount of premium notes given by the Company for reinsurance.....	1,949 46	.....	.....	.....
Less payments thereon.....	615 89	.....	.....	.....
Residue	1,333 57	.....	.....	.....

HAND-IN-HAND INSURANCE COMPANY, MUTUAL AND STOCK.

HEAD OFFICE, TORONTO, ONT.

Commenced business 1st July, 1873.

President—W. H. HOWLAND.

Secretary—HUGH SCOTT.

By Act 42 Vic., Cap. 85, Ontario Statutes, 1879, power was granted to this Company to raise Capital Stock and do business on the Cash System.

Authorized Stock Capital.....	\$500,000 00
Subscribed "	100,000 00
Paid up in cash "	20,000 00
Securities deposited with Treasurer of Ontario.....	10,000 00

LIST OF STOCKHOLDERS.

NAME.	Residence.	Amount Subscribed for.	Amount paid up in Cash.
		\$ c.	\$ c.
Austin, James.....	Toronto	5,000 00	1,000 00
Campbell, A. H.....	"	5,000 00	1,000 00
Coffee, L.....	"	5,000 00	1,000 00
Dixon, B. Homer.....	"	5,000 00	1,000 00
Downey, Jno.....	"	5,000 00	1,000 00
Elliott, Wm.....	"	5,000 00	1,000 00
Fisher, D.....	Bowmanville.....	5,000 00	1,000 00
Gzowski, Col. C. S.....	Toronto	5,000 00	1,000 00
Howland O. A. (in trust).....	"	5,000 00	1,000 00
Howland, W. H.....	"	5,000 00	1,000 00
Macpherson, Sir D. L.....	"	5,000 00	1,000 00
MacLennan, Jas., Q.C.....	"	5,000 00	1,000 00
McDonald, Mitchell D.....	"	5,000 00	1,000 00
McMaster, Hon. Wm.....	"	5,000 00	1,000 00
Smith, Prof. Goldwin.....	"	5,000 00	1,000 00
Smith, Larratt W., D.C.L.....	"	5,000 00	1,000 00
Smith, Henry A.....	London.....	5,000 00	1,000 00
Scott, James.....	Toronto	5,000 00	1,000 00
Smith, Hon. D. A.....	Montreal.....	5,000 00	1,000 00
Scott & Walsaley.....	Toronto	5,000 00	1,000 00
	Total.....	100,000 00	20,000 00

ASSETS.

Mortgages:

Property in Toronto	\$13,750 00	
Shares, Debentures and other Securities.....	13,964 00	
		\$27,714 00
Cash on deposit to Company's credit in Ontario Bank		6,786 52
Accrued interest.....		2,219 87
Cash in agents' hands.....		1,273 78
Undertakings unassessed		5,020 14
All other assets		436 42
Total.....		\$43,450 73

LIABILITIES.

Amount of adjusted losses.....	\$4,127 84
Amount required to re-insure all outstanding risks taken on cash system, being 50 per cent. of gross premiums on all cash system policies in force at December 31st, 1885.....	7,584 36
Total liabilities	\$11,712 20

INCOME.

Cash received for premiums on cash system.....	\$20,520 48
“ as first payments or deposits, being part payment of pre- mium notes	3,815 96
“ for interest.....	2,244 14
“ balance revenue account	249 83
“ premiums, Plate Glass Branch.....	2,788 72
“ “ Marine “	109 38
Total income	\$29,728 51

EXPENDITURE.

Cash paid for commission to agents	\$4,372 25
“ law costs	2 00
“ statutory assessment or certificate.....	120 38
“ printing, stationery and advertising.....	259 39
“ salaries, Directors' and Auditors' fees	1,735 00
“ investigation and adjustment of claims.....	968 22
“ rent and taxes.....	400 00
“ postage, telegrams, express and telephone.....	25 65
“ Goad's plans... ..	92 50
“ scrutineers' fees	10 00
“ incidental	58 80
Total expenses of management	\$8,044 19
Cash paid for losses prior to 1885	\$2,565 41
“ “ during 1885	15,469 85
	18,035 26
“ re-insurances	1,784 93
“ rebate, abatement and returned premiums	1,226 19
“ dividends	2,000 00
Total expenditure	\$31,090 57

CURRENCY OF RISKS.

Amount Covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Three years.	Four years.	Total.
<i>Insurance.</i>	c.	\$ c.	\$ c.	\$ c.
Mutual	294,990 00	185,996 00	8,500 00	489,486 00
Cash	1,208,362 00	480,832 00	.....	1,689,194 00
Plate Glass	8,833 00	59,833 00	.....	68,666 00
Total	1,512,185 00	726,661 00	8,500 00	2,247,346 00
<i>Re-insurance.</i>				
Mutual	15,850 00	1,250 00	.....	17,100 00
Cash	102,595 00	42,544 00	.....	145,139 00
Total	118,445 00	43,794 00	.....	162,239 00
Net risks carried by Company, Dec. 31, 1885.....	1,393,740 00	682,867 00	8,500 00	2,085,107 00

MOVEMENT IN RISKS.

	Number.	Amount.
<i>Mutual System.</i>		\$ c.
Policies in force 31st December, 1884	335	568,264 00
“ new and renewed during 1885.....	225	387,504 00
Gross number during 1885.....	560	955,768 00
Less expired and cancelled in 1885.....	277	466,282 00
Net risks in force on Mutual system 31st December, 1885.....	283	489,486 00
<i>Cash System.</i>		
Policies in force 31st December, 1884.....	1,070	1,598,777 37
“ new and renewed during 1885.....	1,766	1,837,538 00
Gross number during 1885.....	2,836	3,436,315 37
Less expired and cancelled in 1885.....	1,295	1,678,455 37
Net risks in force on Cash system 31st December, 1885.....	1,541	1,757,860 00

BUSINESS TRANSACTED:

General Fire, Plate Glass, and Inland Marine, Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force December 31st, 1885.

	One year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company and legally liable to assessment.....	3,021 97	1,998 17	5,020 14
Amount of premium notes received during the year 1885.....	3,115 59	700 37	3,815 96

**THE MILLERS' AND MANUFACTURERS' INSURANCE COMPANY,
MUTUAL AND STOCK.**

HEAD OFFICE, TORONTO, ONT.

Commenced business 1st September, 1885.

President—JAMES GOLDIE.

Secretary—W. IRELAND SCOTT.

Subscribed stock capital.....	\$125,000
Paid up in cash	6,700
Securities deposited with Treasurer of Ontario.....	10,000

ASSETS.

Shares, debentures and other securities	\$10,000 00
Undertakings, unassessed amount	5,068 77
Uncollected premiums	2,206 52
Unpaid call on stock	5,800 00
Fire equipment	880 91
Total assets	<u>\$23,956 20</u>

LIABILITIES.

Amount of unpaid loan from bank	\$1,128 47
" " " other sources	2,652 19
Total liabilities to Public	<u>\$3,780 66</u>
Liabilities to Stockholders:—	
Call on Stock, paid	\$6,700 00
" Unpaid, and carried to Assets, as above	5,800 00
Total	<u>\$12,500 00</u>

INCOME.

Cash received on stock	\$6,700 00
" as first payments or deposits, being part payment of premium notes	2,874 00
" for interest	125 75
" fire equipment supplies	113 86
" from other sources	3,780 66
Total income	<u>\$13,594 27</u>

EXPENDITURE.

Cash paid for interest	\$77 50
" statutory certificate	120 00
" travelling expenses	860 7½
" rent	133 33
" salaries, directors' and auditors' fees	866 83
" printing, stationery and advertising	489 56
" postage, telegrams and express	51 56
Total expenses of management (<i>Carried forward</i>)	<u>\$2,599 50</u>

EXPENDITURE—*Continued.*

Total expenses of management (<i>Brought forward</i>)	2,599 50
Cash paid for debenture	10,000 00
“ fire equipment.....	994 77
Total expenditure.....	<u>\$13,594 27</u>

CURRENCY OF RISKS.

Amount Covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Total.
	\$ c.	\$ c.
Mutual insurance.....	241,100 00	241,100 00

MOVEMENT IN RISKS.

Risks on Mutual System.

	Number.	Amount.
		\$ c.
Policies taken during 1885.....	82	246,600 00
Less expired and cancelled in 1885.....	2	5,500 00
Net risks in force on mutual system at December 31st, 1885.....	80	241,100 00

BUSINESS TRANSACTED.

Manufacturing Risks.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force December 31st, 1885.

	One year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	5,068 77	5,068 77
Amount of premium notes received during the year 1885 ..	5,080 52	5,080 52

LIST OF STOCKHOLDERS.

NAME.	ADDRESS.	No. of shares.	Amount of stock.	Amount of 10% cash.
			\$ c.	\$ c.
W. H. Howland	Toronto	50	5,000 00	500 00
James Goldie	Guelph	50	5,000 00	500 00
J. B. Armstrong	"	50	5,000 00	500 00
W. Bell & Co.	"	50	5,000 00	500 00
D. McRae	"	20	2,000 00	200 00
Robert Noble	Norval	30	3,000 00	300 00
Wm. Farrish	Rockwood	10	1,000 00	100 00
Henry Hartop	Everton	10	1,000 00	100 00
A. Watts	Brantford	50	5,000 00	500 00
David Plewes	"	10	1,000 00	100 00
A. H. Baird	Paris	10	1,000 00	100 00
C. Whitelaw	"	10	1,000 00	100 00
Thos. O'Neil	"	5	500 00	50 00
Lyman Miller	Woodstock	5	500 00	50 00
D. W. Karn & Co.	"	20	2,000 00	200 00
R. Whitelaw	"	10	1,000 00	100 00
James Hay & Co.	"	50	5,000 00	500 00
Wm. Partlo	Ingersoll	20	2,000 00	200 00
Bradbury & Co.	"	10	1,000 00	100 00
Noxon Bros. M'fg. Coy.	"	30	3,000 00	300 00
J. D. Saunby	London	20	2,000 00	200 00
W. McBride	Strathroy	10	1,000 00	100 00
Hugh Mustard	Wyoming	10	1,000 00	100 00
Robert Stewart	Guelph	10	1,000 00	100 00
Robert Forbes	"	20	2,000 00	200 00
R. & W. S. Law	Georgetown	10	1,000 00	100 00
Creelman Bros.	"	10	1,000 00	100 00
John R. Barber	"	20	2,000 00	200 00
S. Neelon	St. Catharines	30	3,000 00	300 00
James Norris	"	30	3,000 00	300 00
R. H. Smith & Co.	"	10	1,000 00	100 00
Taylor & Bate	"	10	1,000 00	100 00
Charles Riordan	Merritton	50	5,000 00	500 00
J. Zingsheim	Hamilton	30	3,000 00	300 00
J. L. Spink	Toronto	30	3,000 00	300 00
H. A. Baird	"	30	3,000 00	300 00
P. McCabe	Port Hope	10	1,000 00	100 00
Hugh Scott	Toronto	30	3,000 00	300 00
William Sutton	Simcoe	10	1,000 00	100 00
Harold Barrett	Port Hope	10	1,000 00	100 00
Sadler, Dundas & Co.	Lindsay	30	3,000 00	300 00
A. H. Campbell	Toronto	50	5,000 00	500 00
McLaughlin & Moore	"	25	2,500 00	250 00
R. W. Elliott	"	10	1,000 00	100 00
Thomas McKay & Co.	Ottawa	10	1,000 00	100 00
John Hall & Co.	Brockville	20	2,000 00	200 00
King Bros.	Whitby and Toronto	15	1,500 00	150 00
Goldie & McCulloch	Galt	50	5,000 00	500 00
Cherry Bros.	Preston	10	1,000 00	100 00
George Pattinson	"	30	3,000 00	300 00
Jacob Hilborn	Blair	10	1,000 00	100 00
Angus McNally	"	10	1,000 00	100 00
Joseph E. Seagram	Waterloo	30	3,000 00	300 00
Lewis Kribs	Hespeler	10	1,000 00	100 00
Wm. Wilson	Toronto	50	5,000 00	500 00
Total		1,250	\$125,000 00	\$12,500 00

THE ONTARIO MUTUAL FIRE INSURANCE COMPANY.

Commenced business 2nd September, 1867.

President—ANDREW McCORMICK.

Secretary—P. F. BOYLE.

Unassessed premium note capital, \$7,896.11.

Deposited with Treasurer of Ontario, \$2,000.

ASSETS.

Cash value of shares, bonds, debentures and securities, with accrued interest.	\$2,016 26
Actual cash on hand at head office	\$19 66
Cash on deposit to the Company's credit, not drawn against, in the Bank of London	206 66
" in the Dominion Savings Society at London	84 73
	<u>311 05</u>
Cash in Agents' hands, acknowledged by them to be due, and considered good	2,693 37
Amount unpaid of assessments levied during 1885.	671 90
" " " in prior years (not ex- tended)	\$3,157 93
Amount of notes, or due bills, less than one year overdue	01 94
" " more " " (not ex- tended)	\$1,780 78
Amount of premium notes in force after deducting all pay- ments thereon and assessments levied	\$7,896 11
Less premium notes given for reinsurance	20 25
	<u>7,875 86</u>
Total assets	<u><u>\$14,470 38</u></u>

LIABILITIES.

Amount of losses adjusted	\$1,427 30
" " resisted	400 00
	<u>1,827 3</u>
" required to reinsure all outstanding risks taken on the cash system, being 50 per cent. of gross premiums on all cash system policies in force at 31st December, 1885	7,093 45
Due Agents	47 85
Amount of borrowed money	1,000 00
Total liabilities	<u><u>\$9,968 60</u></u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$1,264 67	
Cash received as first payments, being part payments of premium notes...		\$884 39
“ for assessments levied in 1885		2,903 63
“ “ “ years prior to 1885.....		252 09
“ for premiums on cash system		4,906 91
“ for interest		147 32
“ from fees, and extra risks		71 48
“ money borrowed		2,500 00
Total receipts.....		<u>\$11,665 82</u>

EXPENDITURE.

Expenses of Management :

Amount paid to agents for commission	\$1,606 28
“ for law costs	85 52
“ fuel and light	44 59
“ statutory assessment, license, etc	116 83
“ printing, stationery and advertising	140 80
“ rent and taxes	160 00
“ salaries, directors' and auditors' fees	1,806 00
“ travelling expenses	152 55
“ postage, telegrams and express	179 96
“ interest	52 08
Total expenses of management.....	<u>\$4,344 61</u>

Miscellaneous Payments :

Cash paid for losses which occurred prior to 1885.....	\$1,074 77
“ “ “ during 1885	5,320 19
	<u>6,394 96</u>
“ in repayment of loans.....	1,500 00
“ for rebate, abatement and returned premiums	49 92
“ incidentals	329 95
Total expenses	<u>\$12,619 44</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Two years.	Three years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
<i>Insurance.</i>				
Mutual		1,200 00	1,157,266 00	1,158,466 00
Cash	10,300 00	13,630 00	1,449,006 00	1,472,936 00
Total				<u>2,631,402 00</u>
<i>Reinsurance.</i>				
Mutual				1,850 00
Total				<u>1,850 00</u>
Net risks carried by Company, December 31st, 1885.....				2,630,052 00

COUNTY OF PERTH MUTUAL FIRE INSURANCE COMPANY.

*Commenced business 1st December, 1863.**President*—JOHN HYDE, M.D.*Secretary*—CHAS. PACKERT.

Deposited with Treasurer of Ontario, \$2,000.

Unassessed premium note capital, \$45,730.20.

ASSETS.

Market value of debentures	\$13,000 00	
Actual cash on deposit in Mowat's Bank, Stratford.....	4,008 63	
		<u>\$17,008 63</u>
Cash in agents' hands acknowledged by them to be due, and considered good.....		588 31
Amount unpaid of assessments levied during 1885		2,021 15
" of short date notes, or due bills, less than one year overdue.....		1,249 60
" of premium notes in force, after deducting all payments thereon and assessments levied.....	\$45,730 20	
less residue of premium notes given for reinsurance ..	356 36	
		<u>45,373 84</u>
" of interest accrued.....		425 00
" of postage stamps		25 00
Total assets.....		<u><u>\$66,691 53</u></u>

LIABILITIES.

Amount unpaid of adjusted losses	1,234 25
" " " resisted	1,600 00
" required to reinsure all outstanding risks taken on the cash system, being fifty per cent. of gross premiums on all cash system policies in force at 31st December, 1885.....	4,071 66
Amount of an account.....	1 00
	<u>6,906 91</u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$2,440 27
Cash received as first payments, being part payment of premium notes ...	5,894 99
" for assessments levied in 1885	2,218 91
" for assessments levied in years prior to 1885	1,496 25
" for premiums on cash system	4,209 98
" for interest	962 75
" from extra premiums, etc.....	78 75
Total receipts.....	<u><u>\$14,861 63</u></u>

EXPENDITURE.*Expenses of Management :*

Amount paid for commission to agents.....	\$1,353 45
“ law costs.....	23 06
“ fuel and light.....	19 68
“ investigation and adjustment of claims.....	155 72
“ statutory assessment and license.....	129 23
“ printing, stationary and advertising.....	689 54
“ rent and taxes.....	150 00
“ salaries, directors' and auditors' fees.....	1,578 40
“ travelling expenses.....	122 14
“ postage, telegrams and express.....	253 85
“ other expenses.....	99 69
Total expenses of management.....	\$4,574 76

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	\$8,322 62
“ reinsurance.....	76 73
“ rebate.....	148 38
“ agents' accounts.....	170 78
Total expenditure.....	\$13,293 27

CURRENCY OF RISKS.*Amount covered by Policies in force 31st December, 1884.*

SYSTEM.	One year or less.	Three years.	Total.
	\$ c.	\$ c.	\$ c.
Mutual.....	3,000 00	2,816,886 00	2,819,886 00
Cash.....	66,574 00	782,387 00	848,961 00
Total at risk.....	69,574 00	3,599,273 00	3,668,847 00
Mutual reinsured.....		13,425 00	13,425 00
Net risks at 31st Dec., 1885.....		3,585,848 00	3,855,422 00

MOVEMENT IN RISKS.

	Number.	Amount.
<i>Mutual System.</i>		
		\$ c.
Policies in force 31st December, 1884.....	1,993	2,382,285 00
“ new and renewed during 1885*.....	919	1,127,111 00
Gross number during 1885.....	2,912	3,509,396 00
Less expired and cancelled in 1885	589	689,510 00
Net risks in force on mutual system 31st December, 1885.....	2,323	2,819,886 00
<i>Cash System.</i>		
Policies in force 31st December, 1884.....	1,221	906,900 00
“ new and renewed during 1885.....	523	365,811 00
Gross number during 1885.....	1,744	1,272,711 00
Less expired and cancelled in 1885.....	564	423,750 00
Net risks in force on cash system 31st December, 1885.....	1,180	848,961 00

CLASSIFICATION OF RISKS:

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	One year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	150 33	60,533 50	60,683 83
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	63 47	45,666 73	45,730 20
Amount of premium notes received during the year 1885.....	150 33	34,497 19	34,647 52
Residue of premium notes given for reinsurance.....		356 36	356 36

WATERLOO MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, WATERLOO.*Commenced business, 7th March, 1863.**President*—CHAS. HENDRY.*Secretary*—C. M. TAYLOR.

Unassessed premium note capital, \$144,526.35.

Deposited with Government of Ontario, \$13,585.00

ASSETS.

Cash value of real estate, less incumbrances	\$ 4,300 00
Cash value of mortgages	25,300 00
“ shares, bonds, debentures and securities	14,362 81
Cash on deposit to the Company's credit, not drawn against, in the Molson's Bank, Waterloo	30,421 40
Cash on hand at head office	63
Cash in agents' hands, acknowledged by them to be due, and considered good	1,557 96
Amount unpaid of assessments levied during 1885	3,257 21
“ of short date notes or due bills, less than one year overdue	2,522 93
“ of premium notes in force, after deducting all payments thereon and assessments levied	\$144,526 35
Less residue of premium notes given for reinsurance	2,505 00
	<hr/> 142,021 35
Amount of interest due and accrued	1,401 06
	<hr/>
Total assets	<u>\$226,145 35</u>

LIABILITIES.

Amount of losses reported	1,314 00
Amount required to re-insure all outstanding risk taken on the cash system, being 50 per cent. of gross premiums on all cash system policies in force at 31st December, 1885	36,820 51
	<hr/>
Total liabilities	<u>\$38,134 51</u>

RECEIPTS.

Cash at head office as per statement (not extended)	\$732 51	
Cash received for matured municipal debentures		1,686 80
“ as first payments, being part payment of premium notes ..		17,688 27
“ for assessments of 1885		27,143 16
“ “ years prior to 1885		2,465 69
“ premiums on cash system		41,759 48
“ for interest		3,353 14
Cash receipts from transfer fees		122 50
“ extra premiums		266 82
“ rent		100 00
Total receipts ..		<u>\$94,585 86</u>

EXPENDITURE.

Expenses of Management:

Amount paid for commission to agents		9,435 35
“ law costs		677 02
“ fuel and light		208 45
“ investigation and adjustment of claims		2,456 81
“ statutory assessment or certificate		341 66
“ printing, stationery and advertising		1,169 22
“ taxes		153 67
“ salaries, directors' and auditors' fees		5,170 02
“ postage, telegrams and express		725 17
“ travelling expenses		29 85
“ other expenses		451 56
Total expenses of management		<u>20,818 78</u>

Miscellaneous Payments:

Cash paid for losses which occurred during 1885	\$1,639 66	
“ “ “ prior to 1885	35,884 32	
		37,523 98
“ re-insurance		1,154 76
“ rebate, abatement and returned premiums		1,817 07
“ bonus to agents		2,088 57
Total expenditure		<u>\$63,403 16</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December 1885.

SYSTEM.	One year or less.	Three years.	Total.
	\$ c.	\$ c.	\$ c.
<i>Insurance.</i>			
Mutual		3,312,366 67	3,312,366 67
Cash	1,386,633 49	6,011,164 25	7,397,787 74
Total	1,386,633 49	9,323,520 92	10,710,154 41
<i>Reinsurance.</i>			
Mutual		49,500 00	49,500 00
Cash	49,950 00	57,000 00	106,950 00
Net risks carried by Company at December 31, 1885			10,553,704 41

MOVEMENT IN RISKS.

	Number.	Amount.
<i>Mutual System.</i>		
Policies in force 31st December, 1884.....	2,248	\$ 3,034,353 83
“ new and renewed during 1885	967	1,257,499 00
Gross number during 1885.....	3,216	4,291,852 83
Less expired and cancelled in 1885	795	979,486 16
Net risks in force on mutual system 31st December, 1885	2,421	3,312,366 67
<i>Cash System.</i>		
Policies in force 31st December, 1884.....	8,484	7,298,045 02
“ new and renewed during 1885	3,889	3,659,075 49
Gross number during 1885.....	12,373	10,957,120 51
Less expired and cancelled in 1885.....	3,395	3,559,332 77
Net risks in force on cash system 31st December, 1885	8,978	7,397,787 74

CLASSIFICATION OF RISKS:

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	256,357 87	256,357 87
Amount of all premium notes, after deducting all payments thereon and assessments levied	144,526 35	144,526 35
Amount of premium notes received during the year 1885	88,273 82	88,273 82
Residue of premium notes given for reinsurance	2,505 00	2,505 00

RECAPITULATION

OF

ASSETS, LIABILITIES, INCOME AND EXPENDITURE

OF ALL

MIXED MUTUAL AND CASH SYSTEM FIRE INSURANCE COMPANIES.

MIXED MUTUAL AND CASH SYSTEM COMPANIES.

ASSETS FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Value of Real Estate, less Encumbrances.	Mortgages, Bonds, Debentures, or other Securities.	Interest Due and Accrued.	Cash at Head Office and Bank Balances.	Agents' Balances.	Due on Assessments of 1885.	Short Date Notes or Due Bills.	Unassessed Premium Notes.	All other Assets.	Total Assets.	Subscribed Capital Stock Uncalled.
	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.	£ c.
Gore District .....	.....	58,215 00	1,692 97	32,352 48	2,429 73	345 67	.....	121,906 33	.....	216,942 18	.....
Hand-in-Hand .....	.....	27,714 00	2,219 87	6,786 52	1,273 78	.....	.....	5,020 14	436 42	43,450 73	80,000 00
Millers and Manufacturers .....	.....	10,000 00	.....	.....	.....	.....	.....	5,068 77	8,887 43	23,956 20	112,500 00
Ontario .....	.....	2,016 26	.....	311 05	2,693 37	671 90	901 94	7,875 86	.....	14,470 88	.....
Perth County .....	.....	13,000 00	426 00	4,008 63	588 31	2,021 15	1,249 60	45,373 84	25 00	66,691 53	.....
Waterloo	4,300 00	39,662 81	1,401 06	30,422 03	1,557 96	3,267 21	3,522 93	142,021 36	.....	226,145 35	.....
Total	4,300 00	150,608 07	5,798 90	73,880 71	8,543 15	6,205 93	5,674 47	327,266 29	9,948 85	591,656 37	.....

MIXED MUTUAL AND CASH SYSTEM COMPANIES.

LIABILITIES FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Losses unpaid at Dec. 31, 1885, though subsequently discharged.		Unearned Premiums on Cash System Risks, calculated at 50 per cent. of Gross Premiums.		All other Liabilities.		Total Liabilities.		Number of Policies.		Amount at Risk.	
	\$	c.	\$	c.	\$	c.	\$	c.			\$	c.
Gore District	922	46	23,587	33	.....	.....	24,509	79	6,124	.....	6,499,738	74
Hand-in-Hand	4,127	84	7,584	36	.....	.....	11,712	20	1,824	.....	2,247,346	00
Millers and Manufacturers.....	.....	.....	.....	.....	3,780	66	3,780	66	80	.....	241,100	00
Ontario	1,827	30	7,093	45	1,047	85	9,968	60	4,185	.....	2,631,402	00
Perth County	2,894	25	4,071	66	1 00	.....	6,906	91	3,503	.....	3,668,847	00
Waterloo	1,314	00	36,820	51	.....	.....	38,134	51	11,399	.....	10,710,154	41
Total	11,025	85	79,157	31	4,829	51	95,012	67	27,115	.....	25,998,538	15

Government Deposits, as follows :—Gore District, \$20,000 ; Hand-in-Hand, \$10,000 ; Millers & Manufacturers, \$10,000 ; Ontario, \$2,000 ; Perth County, \$3,000 ; Waterloo, \$13,585.

MIXED MUTUAL AND CASH SYSTEM COMPANIES.

RECEIPTS FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Calls on Stock.	First Payments on Premium Notes.	Assessments of 1885.	Assessments due before 1885.	Premiums on Cash System.	Interest.	Fees, Licenses and Extra Premiums.	Sale of Securities.	Other Sources.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Gore District.	.....	11,995 77	25,448 82	1,401 88	33,241 09	3,115 76	365 17	.....	969 34	76,537 83
Hand-in-Hand.	.....	3,815 96	.....	.....	23,418 58	2,244 14	.....	.....	249 83	29,728 51
Millers and Manufacturers.	6,700 00	2,874 00	.....	.....	.....	125 75	.....	.....	3,894 52	13,594 27
Ontario.	.....	884 39	2,903 63	252 09	4,906 91	147 32	71 48	.....	2,500 00	11,665 82
Perth County.	.....	5,894 99	2,218 91	1,496 25	4,209 98	962 75	78 75	.....	.....	14,861 63
Waterloo.	.....	17,688 27	27,143 16	2,465 69	41,759 48	3,353 14	389 32	1,686 80	100 00	94,585 86
Total.	6,700 00	43,153 38	57,714 52	5,615 91	107,536 04	9,948 86	904 72	1,686 80	7,713 69	240,973 92

MIXED MUTUAL AND CASH SYSTEM COMPANIES.

EXPENDITURE FOR YEAR ENDING 31st DECEMBER, 1886.

NAME OF COMPANY.	Equipment and Investments.	Repayment of Loans.	Amount paid for Losses.	Commission and Bonus to Agents.	Costs in Law and Equity.	Reinsurance.	Rebate and Returned Premiums.	Interest.	Statutory Assessments and Fees for Licenses and Certificates.	Salaries and General Expense Account.	Dividends and all other Payments.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Gore District.....	.....	.....	32,790 41	10,135 62	236 00	4,942 02	1,275 87	.....	222 00	8,248 96	.....	57,860 88
Hand-in-Hand .....	.....	.....	18,035 26	4,372 25	2 00	1,784 93	1,226 19	.....	120 88	3,549 56	2,000 00	31,090 57
Millers and Manufacturers.....	10,994 77	.....	.....	.....	.....	.....	.....	.....	120 00	2,479 50	.....	13,594 27
Ontario .....	.....	1,500 00	6,394 96	1,606 28	85 52	.....	49 92	52 08	116 83	2,483 90	329 95	12,619 44
Perth County .....	.....	.....	8,322 62	1,303 45	23 06	76 73	148 38	.....	129 23	3,069 02	170 78	13,233 27
Waterloo.....	.....	.....	37,523 98	11,523 92	677 02	1,154 76	1,817 07	.....	341 66	10,364 75	.....	63,403 16
Total	10,994 77	1,500 00	103,067 23	28,991 52	1,023 60	7,968 44	4,517 43	52 08	1,060 10	30,196 69	2,500 73	191,851 59

STRICTLY MUTUAL FIRE INSURANCE COMPANIES.

YEAR ENDING 31st DECEMBER, 1885.

STRICTLY MUTUAL FIRE INSURANCE COMPANIES.

BAY OF QUINTE AGRICULTURAL MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, PICTON.

Commenced business 31st October, 1874.

President—ARCHELAUS SOUTHAED.

Secretary—J. ROLAND BROWN.

Unassessed premium note capital, \$13,802.07.

ASSETS.

Actual cash on hand at head office.....	\$66 17
Amount unpaid of assessments levied in 1885.....	92 16
“ “ “ “ “ before, not extended.....	\$18 35
Amount of premium notes in force after deducting all payments thereon and assessments levied.....	13,802 07
Total assets.....	<u>\$13,960 40</u>

LIABILITIES.

Amount due for an account.....	\$1 24
Total liabilities	<u>\$1 24</u>

RECEIPTS.

Balance of cash on hand as per last statement, (not extended)	\$114 19
Cash received for first payments, being part payment of premium notes...	\$522 36
“ assessments levied in 1885.....	1,106 72
“ “ “ before 1885.....	58
“ borrowed money.....	140 00
“ transfer fees.....	6 50
“ postage.....	3 35
Total receipts.....	<u>\$1,779 51</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission to agents.....	\$120 40
“ interest... ..	1 72
“ salaries, directors' and auditors' fees.....	395 51
“ postage and telegrams.	11 85
“ statutory assessment.....	25 15
“ printing, stationery and advertising.....	32 40
“ office expenses.....	13 31
Total expenses of management.....	\$600 34
Cash paid for losses which occurred during 1885.....	1,087 19
“ repayment of loans	140 00
Total expenditure.....	<u>\$1,827 53</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Four years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
Mutual.....	745,685.00	400.00	203,820.00	949,905.00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Total.
Policies in force 31st Dec. 1884.....	668	\$ c. 833,446 00
Policies, new and renewed during 1885.....	240	312,320 00
Gross number during 1885.....	908	1,145,766 00
Less expired and cancelled in 1885.....	179	195,861 00
Net risks in force on mutual system, 31st Dec., 1885.....	729	949,905 00

CLASSIFICATION OF RISKS :

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Risks.			Total.
	Three years.	Four years.	Five years.	
	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	12,078 22	8 00.	4,742 87	16,829 09
Amount of all premium notes after deducting all payments thereon and assessments levied	9,994 74	6 40	3,800 93	13,802 07
Amount of premium notes received during year 1885.	4,670 36	.....	507 42	5,171 78

BERTIE AND WILLOUGHBY FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, RIDGEWAY.

Commenced business 6th February, 1880.

President—WALTER E. ELLSWORTH.

Secretary—H. N. HIBBARD.

Unassessed premium note capital, \$8,860.69.

ASSETS.

Actual cash on hand at head office	\$ 6 11
Amount of premium notes in force, after deducting all payments thereon and assessments levied	8,860 69
Total assets	<u>\$8,866 80</u>

LIABILITIES—None.

RECEIPTS.

Cash at head office as per last statement (not extended)	\$1 96
Cash received for fees	\$264 00
“ as first payments, being part payment of premium notes	131 62
“ steam thresher licenses and permits	143 98
Total receipts	<u>\$539 60</u>

EXPENDITURE.

Expenses of Management:

Amount paid to agents for commission and fees	\$161 05
“ statutory assessment	15 14
“ printing, stationery and advertising	34 26
“ salaries, directors' and auditors' fees	229 00
“ postage, telegrams, express, etc.	13 00
“ travelling expenses	14 75
“ incidental expenses	15 75
Total expenses of management	<u>\$482 95</u>
Cash paid for losses which occurred during 1885	52 50
	<u>\$535 45</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	588,152 00	588,152 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	451	501,812 00
" new and renewed during 1885	176	211,635 00
Gross number during 1885	627	713,447 00
Less expired and cancelled in 1885	120	125,295 00
Net risks in force 31st December, 1885	507	588,152 00

CLASSIFICATION OF RISKS.

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	9,229 91	9,229 91
Amount of all premium notes, after deducting all payments thereon and assessments levied	8,860 69	8,860 69
Amount of premium notes received during the year 1885	3,289 65	3,289 65

BLANSHARD MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, WOODHAM.

*Commenced business 27th March, 1876.**President*—WM. T. SANDERSON.*Secretary*—WM. JOHNSTON.

Unassessed premium note capital, \$16,151.33.

ASSETS.

Actual cash on hand at head office	\$105 84
Amount unpaid of assessments levied prior to 1885 (not extended) \$35 20	
Amount of premium notes in force after deducting all payments thereon and assessments levied	16,151 33
Total assets	<u>\$16,257 17</u>

LIABILITIES.

Amount of money borrowed	\$1,100 00
Amount of interest on the above	45 00
Total liabilities	<u>\$1,145 00</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$470;11
“ borrowed in 1885	\$1,845 00
“ being error in previous year	30
Total receipts	<u>\$1,845 30</u>

EXPENDITURES.

Expenses of Management:

Amount paid for travelling expenses	\$8 60
“ “ statutory assessment	21 37
“ “ interest	52 00
“ “ salaries and directors' fees	47 00
“ “ postage, etc	1 00
“ “ fuel and light	3 10
“ “ incidentals	1 50
Expenses of management	<u>134 57</u>
Cash paid for losses which occurred during 1884	1,023 00
“ “ “ “ 1885	352 00
“ repayment of loans	700 00
Total expenditure	<u>\$2,209 57</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	778,095 00	778,095 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1883.....		
“ new and renewed during 1885.....		
Gross number during 1885.....		
Less expired and cancelled in 1885.....		
Net risks in force on mutual system 31st December, 1885	578	778,095 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of all premium notes held by Company, and legally liable to assessment	19,070 09	19,070 09
Amount of all premium notes, after deducting all payments thereon and assessments levied	16,151 33	16,151 33
Amount of premium notes received during the year 1885	1,985 00	1,985 00

NORTH BLENHEIM MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, CHESTERFIELD.

*Commenced business 15th August, 1861.**President*—JOHN BURNS.*Secretary*—GEO. MIDDLEMAS.

Unassessed premium note capital, \$35,743.28.

ASSETS.

Actual cash on hand at head office	\$39 88
Amount of premium notes in force after deducting all payments thereon and assessments levied	35,743 28
Total assets	<u>\$35,783 16</u>

LIABILITIES.

Money borrowed	\$150 00
Total liability	<u>\$150 00</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$4 41
Cash received for membership fees	\$50 95
“ “ “ money borrowed	150 00
Total receipts	<u>\$200 95</u>

EXPENDITURE.

Expenses of Management :

Amounts paid for printing, stationery and advertising	\$29 25
“ law costs	14 00
“ travelling expenses	5 50
“ salaries, directors' and auditors' fees	22 00
“ rent and taxes	6 75
“ postage, telegrams and express ..	2 86
“ statutory assessment	20 12
Total expenses of management	<u>\$100 48</u>
Amount paid for loss which occurred in 1885	65 00
Total expenditure	<u>\$165 48</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	731,150 00	731,150 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	325	666,970 00
“ new and renewed during 1885.....	89	206,350 00
Gross number during 1885.....	414	873,320 00
Less expired and cancelled in 1885.....	72	142,170 00
Net risks in force on mutual system 31st December, 1885.....	342	731,150 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	36,557 50	36,557 50
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	35,743 28	35,743 28
Amount of premium notes received during the year 1885.....	10,367 50	10,367 50

COUNTY OF BRANT FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, PARIS.

*Commenced business 27th May, 1861.**President*—JOHN MILLER.*Secretary*—WM. TURNBULL.

Unassessed premium note capital, \$79,419.54.

ASSETS.

Cash on deposit to the Company's credit, not drawn against, in the Bank of British North America	\$878 91
Amount unpaid of assessments levied during 1885	924 87
“ “ “ in prior years (not extended) \$92.97	
“ of premium notes in force, after deducting all payments thereon and assessments levied	79,419 54
Total assets.	<u>\$81,223 32</u>

LIABILITIES—(None).

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$848.37
Cash received for assessments levied in 1885... ..	\$3,912 87
“ “ “ prior to 1885	826 54
Cash borrowed	800 00
Cash receipts from cancelled policies	35 24
Total receipts.....	<u>\$5,574 65</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission	\$556 71
“ “ fuel and light	2 00
“ “ investigation and adjustment of claims	34 00
“ “ interest.....	106 75
“ “ statutory assessment	80 77
“ “ printing, stationery and advertising	69 60
“ “ rent and taxes	50 00
“ “ salaries, directors' and auditors' fees.....	636 50
“ “ postage, telegrams and express	30 95
“ “ travelling expenses	28 00
“ “ blank books	3 25
“ “ law costs	24 29

Total expenses of management (*carried forward*)..... \$1,622 82

<i>Brought forward</i>	\$1,622 82
<i>Miscellaneous Payments:</i>	
Cash paid for losses which occurred before 1885	\$677.92
“ “ “ during 1885.....	1,393.37
	<hr/>
Repayment of loans.....	2,071 29
	1,850 00
	<hr/>
Total expenditure.....	\$5,544 11

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
Mutual.....	\$ 3,001,469 00 c.	\$ 3,001,469 00 c.

MOVEMENT IN RISKS.

Mutual System.

	No.	Amount.
Policies in force 31st December, 1884.....	2,094	\$ 2,676,840 00 c.
New and renewed during 1885.....	750	1,006,080 00
Gross number during 1885.....	2,844	3,682,920 00
Less expired and cancelled in 1885.....	597	681,451 00
Net risks in force 31st December, 1885.....	2,247	3,001,469 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On policies in force 31st December, 1884.

	Five year risks.	Total.
Amount of face of all premium notes held by Company and legally liable to assessments.....	\$ 90,377 54 c.	\$ 90,377 54 c.
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	79,419 54	79,419 54
Amount of premium notes received during the year 1885.....	30,468 75	30,468 75

WEST BRUCE FARMERS' MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, KINCARDINE.*Commenced business 3rd July, 1885.**President*—**ROBERT BAIRD.***Secretary*—**EDWARD THORNHILL.**

Unassessed premium note capital, \$5,346.55.

ASSETS.

Amount unpaid of assessments levied during 1885	\$113 60
Amount of premium notes in force, after deducting all payments thereon and assessments levied	5,346 55
Total assets	<u>\$5,460 15</u>

LIABILITIES.

Amount of losses adjusted	\$70 00
“ unpaid of salaries, fees and commission	50 40
“ due Treasurer	9 41
“ of all other liabilities	26 40
	<u>\$156 21</u>

RECEIPTS.

Cash received as first payments, being part payment of premium notes...	\$ 54 50
“ received for assessments levied in 1885	600 85
Total receipts	<u>\$655 35</u>

EXPENDITURE.*Expenses of Management :*

Amount paid for rent	\$14 00
“ statutory assessment	20 00
“ printing, stationery and advertising	42 40
“ postage, telegrams and express	11 36
“ books of account, \$12.00 ; seal, \$5.00	17 0
Total expenses of Management	<u>\$104</u>
Cash paid for losses during 1885	560 00
Total expenditure	<u>\$664 76</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three Years.	Total.
	\$ c.	\$ c.
Mutual.....	154,750 00	154,750 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies taken during 1885.....	109	154,750 00
Net risks in force on mutual system, 31st December, 1885	109	154,750 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	6,115 50	6,115 50
Amount of all premium notes after deducting all payments thereon and assessments levied	5,346 55	5,346 55
Amount of premium notes received during the year 1885.....	6,115 50	6,115 50

CANADIAN MILLERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, HAMILTON.

President—DAVID GOLDIE.*Secretary*—SENECA JONES.

Unassessed premium note capital, \$23,395 86.

ASSETS.

Actual cash on hand at head office	\$196 78	
Cash on deposit to the Company's credit, not drawn against, in Bank of Hamilton, at Hamilton.....	1,614 37	
		\$1,811 15
Amount of premium notes in force, after deducting all pay- ments thereon and assessments levied.....	23,395 86	
Less residue of premium notes given by Company for reinsur- ance	1,208 00	
		22,187 86
Total assets		<u>\$23,999 01</u>

LIABILITIES—None.

RECEIPTS.

Cash at head office and in bank, as per last statement (not extended).....	\$596 18	
Cash received as first payments, being part payment of premium notes....	\$4,436 20	
“ for assessments levied during 1885.....	2,293 07	
“ “ prior to 1885	160 00	
“ interest.....	8 31	
“ carpenters' risks, transfer and other fees.....	46 40	
“ due bills.....	55 50	
“ commission on reinsurance	50 00	
“ borrowed money.....	1,600 00	
Total receipts.....		<u>\$8,649 48</u>

EXPENDITURE.*Expenses of Management :*

Amount paid for commission	\$772 24
“ statutory assessment	4 59
“ printing, stationery and advertising	74 50
“ salaries, directors' and auditors's fees	290 00
“ travelling expenses	16 05
“ postage, telegrams and express	50 62
“ investigation and adjustment of claims	4 10
“ interest	27 91
“ office expenses	9 83
Total expenses of management	\$1,249 84

Miscellaneous Payments :

Amount paid for losses which occurred during 1885	3,780 43
“ reinsurance	302 00
“ rebate	68 50
“ inspection of risks	433 74
“ repayment of loan	1,600 00
Total expenditure	<u>\$7,434 51</u>

CURRENCY OF RISKS.*Amount covered by Policies in force 31st December, 1885.*

SYSTEM.	Three Years.	Total.
	\$ c.	\$ c.
Mutual	284,100 00	284,100 00
“ reinsured	12,000 00	12,000 00
Net risks carried by Company December 31, 1885		272,100 00

MOVEMENT IN RISKS.*Mutual System.*

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	90	152,000 00
“ new and renewed during 1885	89	196,600 00
Gross number during 1885	179	348,600 00
Loss expired and cancelled in 1885	38	64,500 00
Net risks in force 31st December, 1885	141	284,100 00

CLASSIFICATION OF RISKS.

The Company's business is exclusively confined to flouring mills, and their stocks and machinery.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Risks.	
	Three years.	Total.
	\$ c.	\$ c.
Amount of face of all premiums notes held by Company and legally liable to assessment.....	32,477 20	32,477 20
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	23,395 86	23,395 86
Amount of premium notes received during the year 1885.....	22,676 00	22,676 00
Residue of premium notes given for reinsurance..		1,208 00

CARADOC FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, MOUNT BRIDGES.

*Commenced business 28th June, 1884.**President*—WM. YOUNG.*Secretary*—WM. E. SAWYER.

Unassessed premium note capital, \$5,475.52.

ASSETS.

Amount of cash on hand	\$106 81
“ premium notes in force, after deducting all payments thereon and assessments levied	5,475 72
“ unpaid assessments levied during 1885	3 52
Total assets	<u>\$5,586 05</u>

LIABILITIES.

Amount due Treasurer	\$6 62
“ for directors' fees and salary	81 50
Total liabilities	<u>\$88 12</u>

RECEIPTS.

Cash received for fees at taking of applications	\$36 50
“ as first payments, being part payment of premium notes	48 38
“ for assessments levied before 1885	96 78
“ for steam threshing licenses	13 00
Total receipts	<u>\$194 66</u>

EXPENDITURE.

Expenses of Management :

Cash paid for law costs	\$4 00
“ travelling expenses	1 50
“ statutory certificate	3 26
“ printing, stationery and advertising	25 00
“ postage, telegrams and express, etc	4 35
“ furniture	2 00
“ inspecting of threshing engines	4 00
Total expenses of Management	<u>\$44 11</u>
Cash paid for re-payment of loan	41 74
“ loss incurred during 1885	2 00
Total expenditure	<u>\$87 85</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Two years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.
Mutual	600 00	192,475 00	192,475 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	95	107,930 00
“ taken during 1885, new and renewed	85	102,015 00
Gross number during 1885.....	180 .	209,945 00
Deduct expired and cancelled in 1885.....	22	17,470 00
Net risks in force 31st December, 1885.....	158	192,475 00

PREMIUM NOTES OR UNDERTAKINGS.

	Two years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	9 00	5,683 27	5,692 27
Amount of all premium notes on policies in force December 31st, 1884, after deducting all payments thereon, and assessments levied.....	8 04	5,461 06	5,475 72
Amount of premium notes received during the year 1885.....		3,023 25	3,023 25

CULROSS MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, LOT 16, CON. 2, CULROSS.
Commenced business June 3rd, 1872.

President—THOMAS ALLISON.

Secretary—WM. COLVIN.

 Unassessed premium note capital, \$17,475.87.

ASSETS.

Cash on hand at head office.....	\$33 54	
“ deposit to company's credit in Hamilton bank, Wingham agency.....	200 00	
		<u>\$233 54</u>
Amount unpaid of assessments levied during 1885.....		38 47
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....		17,475 87
Total assets.....		<u><u>\$17,747 88</u></u>

LIABILITIES—(None).
RECEIPTS.

Cash received for fees or surveys.....	\$78 00
“ assessments levied in 1885.....	502 61
“ “ years prior to 1885.....	6 56
Total receipts.....	<u><u>\$587 17</u></u>

EXPENDITURE.
Expenses of Management :

Amount paid for commission to agents.....	\$27 50
“ statutory assessment or certificate.....	13 21
“ rent.....	4 00
“ salaries, directors' and auditors' fees.....	86 00
“ printing, stationery and advertising.....	12 50
“ postage and telegrams.....	2 50
“ other expenses.....	20
Expenses of management.....	<u>\$145 91</u>
Amount paid for losses which occurred during 1885.....	200 00
“ refunded Treasurer.....	7 72
Total expenditure.....	<u><u>\$353 63</u></u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	460,638 00	460,638 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	333	432,534 00
“ new and renewed during 1885.....	110	156,475 00
Gross number during 1885.....	443	589,009 00
Less expired and cancelled in 1885.....	114	128,371 00
Net risks in force on mutual system on 31st December, 1885.....	329	460,638 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in Force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	18,428 20	18,428 00
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	17,475 87	17,475 87
Amount of premium notes received during the year 1885.....	6,261 68	6,261 68

DOMINION GRANGE MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, OWEN SOUND.

GENERAL BRANCH.

President—J. TRULL.

Secretary—RICHARD J. DOYLE.

Unassessed premium note capital, \$26,903.24.

Commenced business 1st March, 1881.

ASSETS.

Cash value of mortgages.....		\$984 25
Actual cash on hand at head office	\$759 77	
Cash on deposit to the Company's credit, not drawn against, in Merchant's Bank ; agency at Owen Sound	1,599 54	
		2,359 31
Amount unpaid of short date notes or due bills less than one year overdue.		1,291 54
“ “ “ “ one year or more overdue (not extended)	\$181 71	
Amount of premium notes in force, after deducting all payments thereon and assessments levied	\$26,903 24	
Less premium notes given for reinsurance.....	75 76	
		26,827 48
Amount of notes for steam threshers' licenses, etc		53 14
“ interest account		48 18
Total assets		<u>\$31,563 90</u>

LIABILITIES.

Amount of losses adjusted.....		528 00
“ suspense account		50
Total liabilities		<u>\$528 50</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$2,488 92	
Cash received as first payments or deposits, being part payment of premium notes		\$1,799 78
Cash received for due bills, or short date notes.....		3,015 90
Cash received for interest		27 11
Total receipts		<u>\$4,842 79</u>

EXPENDITURE.

Expenses of Management :

Amount paid to agents for fees, on application.....		\$130 00
“ for investigation and adjustment of claims		18 68
“ “ fuel and light		140 70
“ “ printing, stationery and advertising.....		262 36
“ “ statutory assessment		75 86
“ “ salaries, directors' and auditors' fees.....		1,170 20
“ “ postage and telegrams.....		120 58
“ “ rent		112 42
“ “ law costs		15 22
“ “ travelling expenses.		6 72
Total expenses of management (<i>carried forward</i>).....		<u>\$2,052 74</u>

Total expenses of management (*brought forward*)..... 2,052 74

Miscellaneous Payments:

Cash paid for losses which occurred during 1885..... \$1,687 54
 " " reinsurances 13 53
 " " rebate, abatement and returned premiums 77 75
 " " investments 1,139 84

Total expenditure..... \$4,971 40

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Two years.	Three years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
Mutual.....	600 00	500 00	1,613,784 00	1,614,884 00
" reinsured.....			4,800 00	4,800 00
Net risks actually carried by Company at December 31st, 1885.....				1,610,084 00

CLASSIFICATION OF RISKS:

Non-hazardous.

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1,362	1,360,444 00
Policies, new and renewed during 1885.....	602	644,788 00
Gross number during 1885.....	1,964	1,995,232 00
Less expired and cancelled in 1885.....	387	380,348 00
Net risks in force on mutual system 31st December, 1885.....	1,577	1,614,884 00

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	One year risks.	Two year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company and legally liable to assessment.....	9 00	9 00	38,824 75	38,842 75
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	6 75	6 50	26,889.99	26,903 24
Amount of premium notes received during the year 1885.....	9 00		12,850 23	12,859 23
Residue of premium notes given for reinsurance.....			42 09	42 09

DOMINION GRANGE MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, OWEN SOUND.

President—JESSE TRULL.*Secretary*—RICHARD J. DOYLE.

GRANGE BRANCH.

Commenced business March 29th, 1877.

Unassessed premium note capital, \$117,136.92.

ASSETS.

Cash value of real estate, less incumbrances.....	\$4,284 13
“ mortgages	11,250 00
“ shares, bonds, debentures, securities, other than foregoing..	1,100 00
Actual cash on hand at head office.....	1,670 12
Cash on deposit to the Company's credit, not drawn against, in the Molson's Bank agency at Owen Sound.....	27 78
Amount of short date notes or due bills less than one year overdue.....	3,283 71
Amount of short date notes or due bills one year or more overdue (not extended).....	\$122 75
Amount of premium notes in force after deducting all payments thereon and assessments levied.....	\$117,136 92
Less residue of premium notes given by Company for reinsurance.....	325 16
	<hr/> 116,811 76
Amount of due and accrued interest.....	499 23
Notes for carpenters' and steam threshers' risks.....	220 06
Sundry advances	35 63
	<hr/> \$139,182 42

LIABILITIES.

Amount of loss adjusted.....	12 70
“ outstanding accounts	119 12
“ balance of suspense account.....	224 13
	<hr/> \$355 95

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$784 70	
Cash received as first payments or deposits, being part payment of premium notes		\$6,170 90
Cash received for interest.....		734 75
“ due bills or short date notes.....		7,016 02
“ steam thresher licenses.....		353 77
“ carpenters' risks, etc.....		96 51
“ rent		232 42
“ miscellaneous		329 38
“ investments		805 84
Total receipts		<u>\$15,739 59</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission	289 25	
“ law costs.....	30 42	
“ investigation and adjustment of claims.....	485 63	
“ statutory assessment	151 74	
“ printing, stationery, advertising and books.....	524 75	
“ rent and taxes.....	85 88	
“ salaries, directors' and auditors' fees.....	2,594 56	
“ travelling expenses and general agency.....	13 43	
“ postage, telegrams and express, etc., etc.....	241 17	
“ fuel, light and petty expenses.....	281 44	
Total expenses of management.....		<u>\$4,698 27</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	\$5,465 19	
“ “ “ prior to 1885	209 00	
		<u>5,674 19</u>
“ reinsurances	96 03	
“ refunds to members.....	3,081 89	
“ reserve fund.....	300 00	
“ building account	472 26	
“ insurance	22 00	
“ furniture	4 00	
“ legislation, Maritime Provinces	524 25	
“ sundries	78 59	
Total expenditure		<u>\$14,951 48</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Two years.	Three years.	Four years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mutual	1,800 00	3,900 00	34,885 00	5,855,448 00	5,896,033 00
“ reinsured			1,250 00	29,900 00	31,150 00
Net risks actually carried by Com- pany at 31st December, 1885					5,864,883 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	4,753	6,193,322 00
“ new and renewed during 1885	1,358	1,911,993 00
Gross number during 1885	6,111	8,105,315 00
Less expired and cancelled in 1885	1,399	2,209,282 00
Net risks in force on mutual system 31st December, 1885	4,712	5,896,033 00

CLASSIFICATION OF RISKS:

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force December 31st, 1885.

	One year risks.	Two year risks.	Three year risks.	Four year risks.	Total
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.	36 00	93 10	954 47	162,019 39	163,096 96
Amount of all premium notes, after deducting all payments thereon and assessments levied	19 25	72 35	575 12	116,470 20	117,136 92
Amount of premium notes received during the year 1885	36 00	29 00	932 87	36,507 51	37,505 38
Residue of premium notes given for reinsur- ance				325 16	325 16

**NORTH AND SOUTH DORCHESTER MUTUAL FIRE INSURANCE
COMPANY.**

HEAD OFFICE, HARRIETSVILLE.

Commenced business 8th January, 1869.

President—WILLIAM WOODS.

Secretary—FRANCIS KUNZ.

Unassessed premium note capital, \$5,460.82.

ASSETS.

Cash on deposit to the Company's Credit, not drawn against, in the Agricultural Savings and Loan Company, London	\$1,969 47
Amount unpaid of assessments levied during 1885	31 91
“ of premium notes in force, after deducting all payments thereon and assessments levied	5,460 82
Total assets	\$7,462 20

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended) ..	\$440 56	
Cash received as first payments, being part payments of premium notes		\$363 95
“ for assessments levied in 1885		1,324 37
“ “ “ years before 1885		11 28
“ for interest		91 05
Total receipts		<u>\$1,790 65</u>

EXPENDITURE.

Expenses of Management :

Amount paid for printing and stationery	\$20 25
“ “ statutory assessment or certificate	24 71
“ “ rent	2 00
“ “ salaries and auditors' fees	136 00
“ “ postage, telegrams and express	9 70
	<hr/>
Total expenses of management	\$192 66

Miscellaneous Payments :

Cash paid for losses which occurred before 1885	\$8 00	
“ “ “ “ “ during 1885	13 33	
		\$21 33
“ “ “ safe		47 75
Total expenditure.....		\$261 74

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual	877,046 00	877,046 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	607	818,849 00
“ new and renewed during 1885	160	239,735 00
Gross number during 1885	767	1,058,584 00
Less expired or cancelled in 1885	152	181,538 00
Net risks in force on mutual system 31st December, 1885	615	877,046 00

CLASSIFICATION OF RISKS

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ cts.	\$ cts.
Amount of face of all premium notes held by Company, and legally liable to assessment	7,066 08	7,066 08
Amount of all premium notes, after deducting all payments thereon and assessment levied	5,460 82	5,460 82
Amount of premium notes received during the year 1885	4,794 70	4,794 70

DOWNIE MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ST. PAULS.

*Commenced business 21st April, 1884**President*—SAMUEL RANKIN*Secretary*—PETER SMITH.

Unassessed premium note capital, \$7,494.43.

ASSETS.

Cash on hand at head office	\$48 10
Amount of assessment levied during 1885	10 21
“ premium notes in force, after deducting all payments thereon and assessments levied	7,494 43
Total assets	<u>\$7,552 74</u>

LIABILITIES.—None.

RECEIPTS.

Cash received for fees at taking of applications	\$106 50
“ assessments levied during 1885	91 85
Total assets	<u>\$198 35</u>

EXPENDITURE.

Expenses of Management :

Amount paid for fees on applications	\$86 19
“ fuel and light	7 00
“ Statutory assessment	6 54
“ printing, stationary and advertising	10 09
“ postage, telegrams and express, etc.	93
“ levying and collecting assessments	8 00
Total expenses of management	<u>\$118 75</u>
Amount paid for loss incurred in 1885	1 50
“ repaid for loan	30 00
Total expenditure	<u>\$150 25</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	c.	\$ c.
Mutual.....	325,005 00	325,005 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force December 31st, 1884.....	143	216,880 00
“ taken during 1885.....	71	108,125 00
Net risks in force 31st December, 1885	214	325,005 00

PREMIUM NOTES OR UNDERTAKINGS.

	Five years.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by the Company, and legally liable to assessment	7,596 49	7,596 49
Amount of all premium notes on policies in force December 31st, 1885, after deducting all payments thereon, and assessments levied.....	7,494 43	7,494 43
Amount of premium notes received during the year 1885.....	2,661 42	2,661 42

NORTH DUMFRIES AND SOUTH WATERLOO FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, AYR.

Commenced business 15th May, 1856.

President—THOS. MCKAY.

Secretary—WM. DEANS.

Unassessed premium note capital, \$159,729.58.

ASSETS.

Amount unpaid of assessments levied during 1885	\$790 48
“ of assessments levied before 1884 (not extended).....	\$144 15
“ of premium notes in force, after deducting all payments thereon and assessments levied	159,729 58
Total assets	<u>\$160,520 06</u>

LIABILITIES.

Amount due Treasurer	\$145 36
Total liabilities	<u>\$145 36</u>

RECEIPTS.

Cash received for assessments levied in 1885	\$6,928 93
“ received in years prior to 1885	603 25
“ advanced by Treasurer	145 36
“ money borrowed	2,316 66
Total receipts	<u>\$9,994 20</u>

EXPENDITURE.

Expenses of Management:

Amount paid for interest	117 00
“ “ statutory assessment or certificate	104 45
“ “ printing, stationery and advertising	127 94
“ “ rent and taxes	70 50
“ “ salaries, directors' and auditors' fees	1,173 95
“ “ postage, telegrams and express	39 11
“ “ investigation and adjustment of claims	30 10
“ “ solicitors' fees	4 00
Total expenses of management	<u>\$1,667 05</u>

Miscellaneous Payments:

Cash paid for losses that occurred during 1885	5,415 96
“ Treasurer for amount due him 31st Dec., 1884	589 53
“ for repayment of loan	2,316 66
“ “ incidentals	5 00
Total expenditure	<u>\$9,994 20</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	3,535,667 00	3,535,667 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1,358	3,461,738 00
Policies new and renewed during 1885.....	347	794,985 00
Gross number during 1885.....	1,905	4,256,723 00
Less expired and cancelled in 1885.....	347	721,056 00
Net risks in force on Mutual system, 31st December, 1885.....	1,558	3,535,667 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	176,783 35	176,783 35
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	159,729 58	159,729 58
Amount of premium notes received during the year 1885.....	39,749 25	39,749 25

DUNWICH FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, WALLACETOWN.

Commenced business September, 1880.

President—JOHN D. GRAHAM.

Secretary—JOHN L. PEARCE.

Unassessed premium note capital, \$8,887.74.

ASSETS.

Cash on hand at Head Office	\$166 96
Amount unpaid of assessments levied during 1885	144 38
Amount of unassessed premium note capital	8,887 74
Total.....	<u>9,199 08</u>

LIABILITIES.

Amount of money borrowed	\$200 00
Total Liabilities	<u>\$200 00</u>

RECEIPTS.

Amount of cash received for fees and surveys	\$ 38 25
“ “ assessments levied in 1885	1,243 65
“ “ “ “ prior to 1885	69 26
“ “ interest.....	11 34
“ borrowed	400 00
Total income	<u>\$1,762 50</u>

EXPENDITURE.

Expenses of Management :

Amount paid for fuel and light	\$ 3 00
“ interest	7 46
“ statutory assessment	16 56
“ printing, stationery and advertising.....	25 75
“ salaries, directors' and auditors' fees	129 00
Total expenses of management	<u>\$181 77</u>
Cash paid for losses which occurred during 1885.....	1,186 00
“ for loans.....	227 77
Total expenditure	<u>\$1,595 54</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual	537,691 00	537,691 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force December 31, 1884	538	548,756 00
“ taken during 1885 (new and renewed)	79	96,065 00
Gross number during 1885	617	644,881 00
Deduct expired and cancelled in 1885	122	107,190 00
Net risks in force December 31, 1885	495	537,691 00

CLASSIFICATION OF RISKS.

Farm and Non-Hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	13,491 51	13,491 51
Amount of all premium notes, after deducting all payments thereon and assessments levied	8,887 74	8,887 74
Amount of premium notes received during the year 1885	2,401 62	2,401 62

SOUTH EASTHOPE FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, TAVISTOCK.

Commenced business 28th December, 1871.

President—WERNER YOUNGBLUT.

Secretary—ROBERT REID.

Unassessed premium note capital, \$68,909.42.

ASSETS.

Actual cash on hand at head office	\$ 20 61
Cash on deposit to Company's credit in Bank of Commerce, Stratford	200 00
Amount of premium notes in force, after deducting all payments thereon and assessments levied	68,909 42
Promissory note held for loan	200 00
Total assets	<u>\$69,330 03</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as at last statement (not extended)	\$1,207 61
Cash received for assessments levied prior to 1885	\$111 16
“ interest	14 00
Total receipts	<u>\$125 16</u>

EXPENDITURE.

Expenses of Management :

Amount paid for salaries, directors' and auditors' fees	\$141 00
“ adjusting claim	3 00
“ statutory assessment	39 66
“ printing, stationery and advertising	35 00
“ postage, telegrams and express	27 25
“ attending convention	14 00
“ repairing safe, etc.	2 25
Expenses of management	<u>\$262 16</u>

Miscellaneous Payments :

Cash paid for losses which occurred before 1885	650 00
Total expenditure	<u>\$912 16</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	1,451,400 00	1,451,400 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	793	1,313,945 00
“ new and renewed during 1885.....	183	351,650 00
Gross number during 1885.....	976	1,665,595 00
Less expired and cancelled in 1885.....	128	214,195 00
Net risks in force on mutual system 31st December, 1885.....	848	1,451,400 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force December 31st, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by the Company, and legally liable to assessment.....	72,570 00	72,570 00
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	68,909 42	68,909 42
Amount of premium notes received during the year 1885.....	17,582 50	17,582 50

ECONOMICAL MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, BERLIN.*Commenced business 28th October, 1871.**President*—HUGO KRANZ, M.P.*Secretary*—WM. OELSCHLAGER.

Unassessed premium note capital, \$140,978.00.

ASSETS.

Cash on deposit to Company's credit in Canadian Bank of Commerce	\$28,519 83
Cash in Agents' hands, acknowledged by them to be due, and considered good	408 72
Amount unpaid of assessments levied during 1885	2,808 08
“ “ “ in prior years (not extended) \$164 05	
Amount of short date notes, or due bills, less than one year overdue	1,012 79
“ premium notes in force after deducting all payments thereon and assessments levied	\$140,978 00
Less premium notes given for reinsurance	488 07
	<hr/> 140,489 93
Amount of interest due and accrued	602 86
Total assets	<hr/> <u>\$173,842 21</u>

LIABILITIES.—None.**RECEIPTS.**

Cash at head office, as per last statement (not extended)	\$26,526 94
Cash received as first payments, being part payment of premium notes ...	\$10,506 44
“ for assessments levied in 1885	9,087 52
“ for assessments levied in years prior to 1885	2,117 17
“ for interest	1,422 66
“ for transfer fees	63 90
Total receipts	<hr/> <u>\$23,197 69</u>

EXPENDITURE.*Expenses of Management :*

Amount paid for commission to agents	\$1,687 00
“ law costs	49 73
“ statutory assessment	74 67
“ printing, stationery and advertising	374 95
“ salaries, directors' and auditors' fees	2,324 00
“ postage, telegrams and express	206 02
“ fuel and light	33 93
“ rent and taxes	86 00
“ travelling expenses	291 26
“ other expenses	117 68

Expenses of Management..... \$5,245 24

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	\$15,686 26
“ reinsurances	15 92
“ rebate, abatement and returned premiums	257 38

Total expenditure \$21,204 80

CURRENCY OF RISKS.

Amount Covered by Policies in force 31st December, 1886.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	3,248,005	3,248,005 00
Reinsured		10,000 00
Net risks actually carried by Company		3,238,005 00

MOVEMENT IN RISKS.*Mutual System.*

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	2,463	2,475,400 00
“ new and renewed during 1885	1,470	1,372,635 00
Gross number during 1885	3,933	3,848,035 00
Less expired and cancelled in 1885	688	600,030 00
Net risks in force on mutual system 31st December, 1885	3,245	3,248,005 00

BUSINESS TRANSACTED.

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force December 31st, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	176,222 00	176,222 00
Amount of all premium notes, after deducting all payments thereon and assessments levied	140,978 00	140,978 00
Amount of premium notes received during the year 1885 ..	77,292 00	77,292 00
Residue of premium notes given for reinsurance.....		488 07

ELMA FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ATTWOOD.

Commenced business 22nd March, 1884.

President—W. SHEARER.

Secretary—ROBT. CLELAND.

Unassessed premium note capital, \$13,623.22.

ASSETS.

Actual cash on hand at head office.....	\$35 35
Amount unpaid of assessments levied in 1885.....	19 65
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....	13,623 22
Total assets.....	<u>\$13,678 22</u>

LIABILITIES—(None).

RECEIPTS.

Cash received for fees at taking of application.....	\$30 50
“ assessments levied in 1885.....	226 52
Total receipts.....	<u>\$257 02</u>

EXPENDITURE.

Expenses of Management :

Amount paid for statutory certificate.....	\$5 92
“ printing and stationery.....	9 25
“ salaries.....	95 00
“ postage and telegram.....	3 99
“ interest.....	7 70
“ rent.....	4 00
Total expenses.....	<u>\$125 86</u>
Amount of repayment of loan.....	110 00
	<u>\$235 86</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	276,308 00	276,308 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force December 31st, 1884.....	129	196,063 00
“ taken during 1885.....	81	84,555 00
Gross number in force on mutual system, 31st December, 1885.....	210	279,618 00
Less expired and cancelled in 1885.....	2	3,310 00
Net risks in force December 31st, 1885.....	208	276,308 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	
Amount of face of all premium notes held by Company, and legally liable to assessment.....	13,870 90	13,870 90
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	13,623 22	13,623 22
Amount of premium notes received during the year 1885.....	4,227 75	4,227 75

ERAMOSA MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ROCKWOOD.

Commenced business 9th April, 1861.

President—LAZARUS PARKINSON.

Secretary—HUGH BLACK.

Unassessed premium note capital, \$12,278.92.

ASSETS.

Actual cash in hand at head office	\$443 79	
Cash on deposit to the Company's credit, not drawn against, in the Canadian Bank of Commerce, Guelph	2,100 08	
Cash on deposit to the Company's credit, not drawn against, in the Central Bank, Guelph	272 35	
		\$2,816 22
Amount unpaid of assessments levied during 1885		91 66
" of premium notes in force, after deducting all payments therein and assessments levied		12,278 92
Total assets		<u>\$15,186 80</u>

LIABILITIES.—None.

RECEIPTS.

Cash on hand as per last statement (not extended)	\$2,528 07	
Cash received for fees or surveys		\$77 25
Cash received as first payments, being part payment of premium notes		137 95
Cash received for assessments levied in 1885		116 59
" " " years prior to 1885		82 86
" for interest		101 12
Total receipts		<u>\$515 77</u>

EXPENDITURE.

Expenses of Management :

Amount paid for fees		\$77 25
" " statutory assessment		8 33
" " printing		20 80
" " salaries		77 00
" " postage, etc		5 09
" " rent and taxes		5 00
" " press seal		6 00
Total expenses of management		<u>\$199 47</u>
Amount paid for losses which occurred before 1885	\$6 25	
" " " during "	21 90	
		28 15
Total expenditure		<u>\$227 62</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	378,660 00	378,660 00

MOVEMENT OF RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	183	276,085 00
“ new and renewed during 1885	85	134,700 00
Gross number during 1885.....	268	410,785 00
Less expired and cancelled in 1885.....	75	32,125 00
Net risks in force on mutual system 31st December, 1885.....	193	378,660 00

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	13,564 50	13,564 50
Amount of premium notes, after deducting all payments thereon and assessments levied	12,278 92	12,278 92
Amount of premium notes received during the year 1885.....	6,215 25	6,215 25

ERIE FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, SELKIRK.

Commenced business 2nd September, 1871.

President—GUY CULVER.

Secretary—J. W. HOLMES.

Unassessed premium note capital, \$12,206.60.

ASSETS.

Actual cash on hand at head office	\$245 11
Amount unpaid of assessments levied during 1885	82 56
“ short date notes, or due bills, less than one year overdue.	176 70
“ premium notes in force, after deducting all payments thereon and assessments levied	12,206 60
Total assets	<u>\$12,710 97</u>

LIABILITIES.

Amount of adjusted loss	\$700 00
Total liabilities	<u>\$700 00</u>

RECEIPTS.

Cash as per last statement (not extended)	\$187.49
“ at taking of applications	\$110 50
“ received as first payments, being part payment of premium notes at head office	87 68
“ “ for assessments levied in 1885	777 09
“ “ due bill	9 07
“ “ engine licenses	16 25
Total receipts	<u>\$1,009 59</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission and fees	\$55 25
“ statutory assessment	17 99
“ printing, stationery and advertising	12 50
“ salaries, directors' and auditors' fees	145 70
“ postage, telegrams and express	7 82
“ travelling expenses	4 50
“ fuel	2 00
Total expenses of management	<u>\$245 76</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1875	\$697 21
Total expenditure	<u>\$942 97</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st Dec., 1885.

SYSTEM.	Five years.	Total.
	\$ cts.	\$ cts.
Mutual	607,235 00	607,235 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ cts.
Policies in force 31st December, 1884.....	563	596,165 00
“ new and renewed during 1885.....	84	85,895 00
Gross number during 1885.....	647	682,060 00
Less expired and cancelled in 1885.....	77	74,825 00
Net risks in force 31st December, 1885.....	570	607,235 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st Dec, 1885.

	Five year risks.	Total.
	\$ cts.	\$ cts.
Amount of face of all premium notes held by Company and legally liable to assessment.....	14,604 75	14,604 75
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	12,206 60	12,206 60
Amount of premium notes received during the year 1885.....	2,229 87	2,229 87

FORMOSA MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, FORMOSA.

*Commenced business 22nd May, 1880.**President*—ANDREW WAECHTER.*Secretary*—JULIUS NOLL.

Unassessed premium note capital, \$13,261.20.

ASSETS.

Amount of cash on hand at head office	\$546 60
“ “ in Agents' hands, acknowledged by them to be due, and considered good	149 88
Amount of unpaid assessments which were levied during 1885	4 08
“ “ “ “ in prior years (not extended)	\$2 40
Amount of premium notes in force, after deducting all payments thereon and assessments levied	13,261 20
Total assets	<u>\$13,961 76</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$1,148 71
Cash received as first payments, being part payment of premium notes ..	\$118 28
“ for assessments levied in 1885	198 88
“ “ before 1885	10 96
“ for interest	37 25
Cash from sundries	17 54
Total receipts	<u>\$382 91</u>

EXPENDITURE.

Expenses of Management :

Amount paid for statutory assessment or certificate	\$9 02
“ salaries	84 80
“ postage, telegrams and express	4 20
“ investigation of claims	7 00
“ printing and stationery	5 00
Total expenses of management	<u>\$110 02</u>
Cash paid for losses which occurred during 1885	875 00
Total expenditure	<u>\$985 02</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	442,515 00	442,515 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	258	298,874 00
“ new and renewed during 1885	222	206,790 00
Gross number during 1885.....	480	505,664 00
Less expired and cancelled in 1885.....	62	63,149 00
Net risks in force 31st December, 1885	418	442,515 00

CLASSIFICATION OF RISKS :

Farm and Non-hazardous.

PREMIUM NOTES AND UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	14,058 00	14,058 00
Amount of all premium notes, after deducting all payments thereon and assessments levied	13,261 20	13,261 20
Amount of premium notes received during the year 1885.....	6,644 00	6,644 00

GERMANIA FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, NEAR NEUSTADT.

*Commenced business 16th March, 1878.**President*—JNO. ROEDDING.*Secretary*—GEO. HOFF.

Unassessed premium note capital, \$16,735.31.

ASSETS.

Actual cash on hand at head office	\$41 10
Amount unpaid of assessments levied before 1885 (not extended)..	\$3.50
Amount of premium notes in force after deducting all payments thereon and assessments levied	16,735 31
Total assets	\$16,776 41

LIABILITIES.

Amount due Manager for salary	\$55 50
Total liabilities	\$55 50

RECEIPTS.

Cash at head office as per last statement (not extended).....	\$14 36
Cash received for membership fees (not being part payment of premium notes)	\$39 00
Cash received for assessments levied in years prior to 1885	97 85
“ for certain fees	2 00
Total receipts	\$138 85

EXPENDITURE.

Expenses of Management :

Amount paid for commission	\$1 50
“ statutory assessment or certificate	19 50
“ printing, stationery and advertising	16 70
“ rent and taxes	1 00
“ salaries, directors' and auditors' fees	60 40
“ travelling expenses	5 00
“ postage, telegrams and express	4 41
Expenses of management	\$108 51

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	3 60
Total expenditure	\$112 11

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	710,470 00	710,470 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	515	646,365 00
“ new and renewed during 1885	162	218,355 00
Gross number during 1885.....	677	864,720 00
Less expired and cancelled in 1885.....	122	154,250 00
Net risks in force on mutual system 31st December, 1885.....	555	710,470 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	18,089 75	18,089 75
Amount of all premium notes after deducting all payments thereon and assessments levied ..	16,735 31	16,735 31
Amount of premium notes received during the year 1885.....		5,261 00

THE GLOBE MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, BRANTFORD.

Commenced business 5th November, 1873.

President—JOHN STRICKLAND.

Secretary—EDWIN SIMS.

Unassessed premium note capital, \$12,696.36.

ASSETS.

Actual cash on hand at head office.....	\$50 71	
Cash on deposit to the Company's credit, not drawn against, in Canadian Bank of Commerce agency at Brantford	593 55	
" Royal Loan and Savings' Company, Brantford.....	1,700 00	
		2,344 26
Cash in agents' hands, acknowledged by them to be due, and considered good		19 42
Amount of unpaid assessments levied during 1885		520 19
" " " before 1883, not extended..	\$1,176 50	
" notes or due bills less than one year overdue.....		67 45
" premium notes in force, after deducting all payments thereon and assessments levied.....		12,696 36
" of interest accrued		42 66
" Postage stamps.....		11 72
Total assets		<u>\$15,702 06</u>

LIABILITIES.

Amount of losses reported	\$325 00
" due directors.....	107 95
Total liabilities	<u>\$432 95</u>

RECEIPTS.

Cash on hand, as per last statement, not extended	\$1,553 65
Cash received as first payments, being part payment of premium notes....	\$1,207 65
" for assessments levied in 1885	1,155 06
" " " years prior to 1885	171 93
" transfer fees, etc.	18 50
" interest	40 11
Total receipts	<u>\$2,593 25</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission to agents.....	\$480 37
“ statutory assessment	22 03
“ printing, stationery and advertising.....	11 25
“ salaries, directors' and auditors' fees	585 75
“ postage, telegrams and express.....	25 09
Expenses of management	<u>\$1,124 49</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	661 36
“ “ “ rebate, etc.	16 79
Total expenditure.....	<u>\$1,802 64</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Three years.	Total.
	\$ c.	\$ c.	\$ c.
Mutual	20,500 00	755,841 00	776,341 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Total.
		\$ c.
Policies in force 31st December, 1884.....	1,144	730,207 00
New and renewed during 1885.....	451	333,360 00
Gross number during 1885.....	1,595	1,063,567 00
Less expired and cancelled in 1885.....	368	287,226 00
Net risks in force 31st December, 1885.....	1,227	776,341 00

BUSINESS TRANSACTED.

Mercantile and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On policies in force 31st December, 1885.

	One year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	388 43	18,184 12	18,572 55
Amount of all premium notes, after deducting all pay- ments thereon and amounts levied	329 76	12,366 60	12,696 36
Amount of premium notes received during the year 1885.....	288 51	7,087 05	7,375 56

THE GRAND RIVER FARMERS' MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, YORK.*Business commenced 15th April, 1875.**President*—DAVID LINDSAY.*Secretary*—F. A. NELLES.

Unassessed premium note capital, \$4,622.10.

ASSETS.

Actual cash on hand at head office	\$61.35	
Cash on deposit to the Company's credit, not drawn against, in Hamilton Bank Agency, Hamilton	\$550.00	
		\$611 35
Cash in agents' hands, acknowledged by them to be due, and considered good.		35 00
Amount unpaid of assessments levied in 1885		206 33
“ “ “ “ before 1885 (not extended)..	\$27.92	
Amount of premium notes in force after deducting all payments thereon and assessments levied		4,622 10
Amount of unpaid licenses		7 00
Total assets		<u>\$5,481 78</u>

LIABILITIES—None.**RECEIPTS.**

Cash at head office and in bank, as per last statement (not extended)	\$807.89	
Cash received at taking of applications		\$19 25
“ for assessments levied in 1885		815 84
“ for assessments levied in years prior to 1885		107 62
“ for sale of licenses		3 00
“ for interest		10 04
		<u>\$955 75</u>

EXPENDITURE.*Expenses of Management :*

Amount paid for statutory assessment	\$12 27
“ printing and advertising	8 75
“ salaries, directors' and auditors' fees	166 00
“ travelling expenses	4 00
“ postage, telegrams, express and stationery	14 40
“ incidental expenses	1 00
Total expenses of management	<u>\$206 42</u>

Miscellaneous payments :

Cash paid for losses which occurred during 1883	945 00
“ “ refund	87
Total expenditure	<u>\$1,152 29</u>

CURRENCY OF RISKS.

Amount covered by Policies in force, 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	413,910 00	413,910 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	306	406,815
“ new and renewed during 1885	94	110,625
Gross number during 1885	400	517,440 00
Less expired and cancelled in 1885	90	103,530 00
Net risks in force on mutual system 31st December, 1885	310	413,910 00

CLASSIFICATION OF RISKS.

All Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	6,287 76	6,287 76
Amount of all premium notes, after deducting all payments thereon and assessments levied	4,622 10	4,622 10
Amount of premium notes received during the year 1885	1,678 85	1,678 85

GREY AND BRUCE MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, HANOVER.

*Commenced business 6th July, 1878.**President*—DAVID McNICOL.*Secretary*—JONATHAN O'NEILL.

Unassessed premium note capital, \$11,748.65,

ASSETS.

Cash on deposit to the Company's credit, not drawn against, in the Central Bank agency at Durham	\$1,836 02
Amount unpaid of assessments of 1885	324 15
“ prior assessments (not extended)	\$115 77
Amount of premium notes in force after deducting all payments thereon and assessments levied	11,748 65
Total assets	<u>\$13,908 82</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$4.37
Cash received for assessments levied of 1885	\$433 25
“ “ years prior to 1885	38 69
“ interest	60 45
Total receipts	<u>\$532 39</u>

EXPENDITURE.*Expenses of Management :*

Amount paid for printing, stationery and advertising	\$27 35
“ salaries, directors' and auditors' fees	177 00
“ statutory assessment	20 12
“ postage	19 00
Expenses of management	<u>\$243 47</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	16 67
“ safe	140 60
Total expenditure	<u>\$400 74</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year.	Two years.	Three years.	Four years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mutual.....	900 00	6,825 00	298,808 00	14,630 00	348,166 00	669,329 00

MOVEMENT OF RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	619	666,779 00
“ new and renewed during 1885	146	129,575 00
Gross number during 1885.....	765	796,354 00
Less expired and cancelled in 1885	134	127,025 00
Net risks in force 31st December, 1885	631	669,329 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	One year risk.	Two year risks.	Three year risks.	Four year risks.	Five year risks.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.	12 20	58 63	4,609 25	269 85	8,628 48	13,578 41
Amount of all premium notes, after deducting all payments thereon and assessments levied	10 00	57 63	4,050 72	196 80	7,433 50	11,748 65
Amount of premium notes received during the year 1885.	5 00	42 63	1,846 39	29 50	.....	1 923 52

GUELPH TOWNSHIP MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, GUELPH TOWNSHIP, LOT 6, CON. 1, DIV. B.

Commenced business 16th February, 1860.

President—JOHN HOBSON.

Secretary—WM. WHITELAW.

Unassessed premium note capital, \$19,392.05.

ASSETS.

Actual cash on hand at head office	\$98 91
“ in Bank of Commerce, Guelph	500 00
Amount of premium notes in force after deducting all payments thereon and assessments levied	19,392 05
Total assets	<u>\$19,990 96</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$118 43
Cash received as first payments, being part payment of premium notes..	\$202 82
“ for assessments levied in 1884	376 95
Total receipts	<u>\$579 77</u>

EXPENDITURE.

Expenses of Management :

Amount paid for statutory assessment or certificate	\$13 19
“ printing, stationery and advertising	22 00
“ salaries, directors' and auditors' fees	49 00
“ postage, telegrams and express	5 10
“ commission	10 00
Total expenditure	<u>\$99 29</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	459,340 00	459,340 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	243	437,315 00
“ new and renewed during 1885	91	149,890 00
Gross number and amount during 1885.....	334	587,205 00
Less expired and cancelled in 1885.....	70	127,865 00
Net risks in force 31st December, 1885	264	459,340 00

CLASSIFICATION OF RISKS.

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	21,109 00	21,109 00
Amount of premium notes, after deducting all payments thereon and assessments levied	19,392 05	19,392 05
Amount of premium notes received during the year 1885	7,029 00	7,029 00

HAY TOWNSHIP FARMERS' MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, ZURICH.*Commenced business 3rd February, 1875.**President—J. B. GEIGER.**Secretary—HENRY EILBER.*

Unassessed premium note capital, \$42,961.29.

ASSETS.

Cash on hand at Head Office, and on deposit to Company's credit in Molson's Bank at Exeter	\$1,512 81
Amount of unpaid assessments levied before 1885, not extended	18 85
Amount of premium notes in force, after deducting all payments thereon and assessments levied	42,961 29
Safe (not extended)	
Total assets	\$44,474 10

LIABILITIES.—None.**RECEIPTS.**

Cash at Head Office, as per last statement (not extended) ..	\$1,588 66
Cash received as first payments, being part payment of premium notes ..	232 45
“ for assessments levied before 1885	20 84
“ “ interest	56 00
Total receipts	\$309 29

EXPENDITURE.*Expenses of Management :*

Amount paid for statutory assessment	\$47 01
“ printing, stationery and advertising	29 25
“ salaries, directors' and auditors' fees	116 80
“ travelling expenses	4 50
“ postage, telegrams and express	20 00
“ investigation and adjustment of claims	3 50
“ other expenses	8 75
Expenses of management	229 81

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	155 33
Total expenditure	\$385 14

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual System.....	1,669,787 00	1,669,787 00

MOVEMENT OF RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	1247	1,544,972 00
“ new and renewed during 1885	332	459,550 00
Gross number during 1885.....	1579	2,004,522 00
Less expired and cancelled in 1885.....	290	334,735 00
Net risks in force on Mutual system, 31st December, 1885.....	1289	1,669,787 00

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company and legally liable to assessment.....	45,544 13	45,544 13
Amount of all premium notes, after deducting all payments thereon and assessments levied	42,961 29	42,961 29
Amount of premium notes renewed during the year 1885	12,984 60	12,984 60

HOPEWELL CREEK MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, NEW GERMANY.

*Commenced business 3rd March, 1880.**President*—EDWARD HALTER.*Secretary*—ANTON FRANK.

Unassessed premium note capital, \$43,541.97.

ASSETS.

Actual cash in hand at head office	\$41 73
Amount unpaid of assessments levied in 1885	102 00
“ “ “ “ prior years (not extended) \$12 00	
“ of premium notes in force, after deducting all payments thereon and assessments levied	\$43,541 97
Total assets	<u>\$43,685 70</u>

LIABILITIES.

Amount of adjusted loss	\$300 00
Total liabilities	<u>\$300 00</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$202 45
Cash received as first payments, being part payment of premium notes ...	\$3 15
“ for assessments levied in 1885	1,094 01.
“ for assessments levied in prior years	134 80
“ for money borrowed	750 00
Total receipts	<u>\$1,981 96</u>

EXPENDITURE.

Expenses of Management :

Amount paid for investigation and adjustment of claims	\$9 00
“ printing	26 79
“ salaries, directors' and auditors' fees	166 00
“ statutory assessment	23 34
“ travelling expenses	5 00
“ postage, etc.	37 91
“ commission	1 88
“ interest	43 58
“ incidentals	6 60
Expenses of management	<u>\$320 10</u>

Miscellaneous Payments :

Cash paid for losses which occurred before 1885	\$754 58
“ repayment of loans	1,050 00
“ interest	18 00
Total expenditure.....	<u><u>\$2,142 68</u></u>

CURRENCY OF RISKS.

Amount covered by Policies in force, 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual	843,749 00	843,749 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	731	773,583 00
“ new and renewed during 1885.....	221	240,656 00
Gross number during 1885.....	952	1,014,238 00
Less expired and cancelled in 1885.....	166	170,489 00
Net risks in force on mutual system, 31st December, 1885.....	786	843,749 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company and legally liable to assessment	46,936 76	46,936 76
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	43,541 97	43,941 97
Amount of premium notes during the year 1885	13,437 40	13,437 40

HOWICK FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, GORRIE.

*Commenced business 10th July, 1878.**President*—JAMES EDGAR.*Secretary*—T. F. MILLER.

Unassessed premium note capital, \$119,327.91.

ASSETS.

Actual cash on hand at head office and in private bank.....	\$1,357 45
Amount unpaid of assessments levied during 1885	801 70
“ “ “ in prior years (not extended). \$363 87	
“ of premium notes in force, after deducting all payments thereon and assessments levied.....	119,327 91
Total assets	<u>\$121,487 06</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$373 14
Cash received for assessments levied in 1885.....	\$6,413 85
“ “ “ years prior to 1885.....	229 23
Cash borrowed.....	3,300 00
Total receipts	<u>\$9,943 08</u>

EXPENDITURE.*Expenses of Management :*

Amount paid for law costs	\$231 86
“ to agents for commission	132 00
“ for investigation and adjustment of claims.....	62 20
“ statutory assessment	79 71
“ printing, stationery and advertising	122 00
“ rent and fuel.....	7 50
“ salaries, directors' and auditors' fees.....	752 80
“ interest	202 16
“ postage, telegrams and express.....	55 27
“ other expenses ...	50 01
Expenses of management.....	<u>\$1,695 51</u>

Miscellaneous Payments :

Cash paid for losses which occurred prior to 1885.....	\$2,783 90
“ “ during 1885	1,179 36
	3,963 26
“ repayment of loans.....	3,300 00
Total expenditure	<u>\$8,958 77</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	2,893,268 00	2,893,268 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	2,063	2,641,861 00
" new and renewed during 1885.....	462	616,596 00
Gross number during 1885.....	2,525	3,258,456 00
Less expired and cancelled in 1885.....	324	365,188 00
Net risks in force on mutual system 31st December, 1885.....	2,201	2,893,268 00

CLASSIFICATION OF RISKS:

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	146,103 40	146,103 40
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	119,327 91	119,327 91
Amount of premium notes received during the year 1885.....	32,047 00	32,047 00

THE HURON AND MIDDLESEX MUTUAL FIRE INSURANCE COMPANY

HEAD OFFICE, LONDON.

Commenced business 17th December, 1878.

President—L. C. LEONARD.

Secretary—JOHN STEPHENSON.

Unassessed premium note capital, \$48,837.80.

ASSETS.

Amount of mortgage	\$1,000 00
Actual cash on hand at head office	90 18
“ in Bank of London	112 56
Cash in agents' hands acknowledged by them to be due and considered good	1,066 79
Amount unpaid of assessments levied during 1885	1,466 88
“ “ “ before 1885, not extended. \$1,006 77	
Amount of short date notes, or due bills, less than one year overdue	2,387 12
“ premium notes in force, after deducting all payments thereon and assessments levied \$48,837 80	
“ less residue of premium notes given for reinsurance. 562 12	
	<hr/> 48,275 68
“ accrued interest on mortgage	15 00
Total assets	<hr/> <u>\$54,414 21</u>

LIABILITIES.

Amount of losses adjusted	\$2,530 50
“ “ resisted	650 00
“ bills payable	1,500 00
“ salaries and rent	759 00
Total liabilities	<hr/> <u>\$5,439 50</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$295 12
Cash received at taking of applications	\$140 16
“ as first payments, being part payment of premium notes ...	11,228 71
“ for assessments levied in 1885	6,448 40
“ “ “ in prior years	675 15
Carried forward	<hr/> <u>\$18,492 42</u>

<i>Brought forward</i>	\$18,492 42
Cash received for interest	38 35
“ from transfers and extra premiums	62 55
“ from re-insurance	990 07
“ for return fire claims	100 11
“ for rent	65 25
“ from loan	100 00
“ from other sources	90 30
Total receipts	\$19,939 05

EXPENDITURE

Expenses of Management :

Amount paid for commission to agents	\$1,735 20
“ “ fuel and light	29 53
“ “ investigation and adjustment of claim	113 74
“ “ interest	216 08
“ “ statutory assessment	52 13
“ “ printing, stationery and advertising	439 81
“ “ rent and taxes	204 00
“ “ salaries, Directors' and Auditors' fees	2,529 70
“ “ travelling expenses	616 62
“ “ postage, telegrams and express	189 75
“ “ law costs	241 53
“ “ mercantile agency	50 00
“ “ incidental expenses	23 10
Expenses of management	\$6,441 19

Miscellaneous Payments :

Cash paid for losses which occurred prior to 1885	\$2,927 73
“ “ “ “ during 1885	7,218 13
	<hr/>
	10,175 86
“ “ reinsurance	220 78
“ “ returned premiums	436 65
	<hr/>
Total expenditure	\$17,274 48

CURRENCY OF RISKS.

Amount Covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Three years.	Total.
	\$ c.	\$ c.	\$ c.
Mutual.....	275,560 00	1,605,647 00	1,881,207 00
Reinsured	8,450 00	15,275 00	23,725 00
Net risks carried by Company 31st December, 1885....	267,110 00	1,590,372 00	1,857,482 00

MOVEMENTS IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	1,626	1,115,434 00
New and renewed during 1885.....	1,246	860,915 00
Gross number during 1885.....	2,872	1,976,349 00
Less expired and cancelled in 1885.....	126	95,142 00
Net risks in force 31st December, 1885.....	2,746	1,881,207 00

BUSINESS TRANSACTED:

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	One year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.
Amount of all premium notes, December 31, 1885, after deducting all payments thereon and assess- ments levied.....			48,837 80
Amount of premium notes received during the year 1885	11,301 53	23,931 98	35,233 51
Residue of premium notes given for reinsurance during the year 1885	123 10	439 02	562 12

THE LAMBTON FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, WATFORD.

Commenced business 5th November, 1875.

President—GEORGE DEWAR.

Secretary—W. G. WILLOUGHBY.

Unassessed premium note capital, \$22,528.64.

ASSETS.

Market value of shares, bonds, debentures and securities	\$100 00
Cash on hand	38 04
“ deposit, to Company's credit, in Bank of London, Watford	4,539 05
“ in agents' hands	32
Amount of short date notes, or due bills, less than one year overdue	908 23
“ “ “ “ one year or more overdue (not extended	\$18.90
“ premium notes in force, after deducting all payments thereon and assessments levied	22,528 64
Total assets	\$28,114 28

LIABILITIES.

Due to Agents	\$2 20
Total liabilities	\$2 20

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$3,028.98
Cash received as first payments, being part payment of premium notes ..	\$5,036 78
“ for interest	140 63
“ “ debentures	1,350 00
Total receipts	\$6,527 41

EXPENDITURE.

Expenses of Management :

Amount paid for commission to agents	\$419 50
“ “ statutory assessment	69 09
“ “ printing, stationery and advertising	130 75
“ “ salaries, directors' and auditors' fees	457 00
“ “ postage, telegrams and express	63 62
“ “ travelling expenses	17 70
“ “ other	31 44
Total expenses of management ...	\$1,189 10

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	\$2,631 65
“ “ rebate	158 55
“ “ investment	1,000 00
Total expenditure	\$4,979 30

CURRENCY OF RISKS.

Amount covered by Policies in force 31st Dec., 1885.

SYSTEM.	Three years.	Total.
	\$ cts.	\$ cts.
Mutual.....	2,511,757 00	2,511,757 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ cts.
Policies in force 31st December, 1884	2,108	2,271,419 00
“ new and renewed during 1885	841	882,955 00
Gross number during 1885	2,949	3,154,374 00
Less expired and cancelled in 1885	649	642,617 00
Net risks 31st December, 1885	2,300	2,511,757 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ cts.	\$ cts.
Amount of face of all premium notes held by Company and legally liable to assessment	37,613 35	37,613 35
Amount of all premium notes, after deducting all payments thereon and assessments levied	22,528 64	22,528 64
Amount of premium notes received during the year 1885	13,228 23	13,228 23

LENNOX AND ADDINGTON MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, NAPANEE.*Commenced business 17th August, 1876.**President*—J. B. AYLESWORTH.*Secretary*—CHARLES JAMES.

Unassessed premium note capital, \$6,942.92.

ASSETS.

Actual cash on hand at head office.....	\$213 28	
“ deposit to Company's credit in Merchants' Bank, Napanee	711 20	\$924 48
Amount unpaid of assessments levied during 1885		225 00
“ “ in prior years (not extended). \$249 47		
Amount of premium notes in force, after deducting all payments thereon and assessments levied		6,942 92
Total assets		\$8,092 40

LIABILITIES.

Amount of adjusted losses	\$5 00
“ unpaid loans from banks or other sources	1,000 00
“ interest accrued thereon	40 83
“ unpaid salaries and fees	76 48
Total liabilities	\$1,122 31

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$2,202 69
Cash received for assessments levied in 1885	\$1,206 41
“ “ years prior to 1885	334 27
“ interest	16 55
Cash borrowed	1,295 10
“ from other sources	3 05
Total receipts	\$2,855 38

EXPENDITURE.*Expenses of Management:*

Amount paid for commission	\$88 00
“ statutory assessment	23 71
“ printing, stationery and advertising	27 00
“ salaries, directors' and auditors' fees	120 98
“ postage	23 07
“ legal expenses	15 12
“ interest	149 44
“ incidentals	25 93

Expenses of Management (carried forward)	473 25
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Expenses of Management (<i>brought forward</i>).....	\$473 25
<i>Miscellaneous Payments:</i>	
Cash paid for losses which occurred prior to 1885.....	320 34
“ “ “ during 1885	990 00
Payment of loans.....	2,350 00
Total expenditure	<u>\$4,133 59</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	514,840 00	514,840 00

MOVEMENT IN RISKS.

Mutual System

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	667	785,701 00
“ new and renewed during 1885	120	113,024 00
Gross number during 1885.....	787	898,725 00
Less expired and cancelled in 1885.....	300	383,885 00
Net risk in force on mutual system 31st December, 1885.....	487	514,840 00

CLASSIFICATION OF RISKS.

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company and legally liable to assessment.....	15,221 65	15,221 65
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	6,942 92	6,942 92
Amount of premium notes received during the year 1885.....	2,528 06	2,528 06

LOBO MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, COLDSTREAM.

Commenced business 11th August, 1882.

President—ALEX. GRAY.

Secretary—J. T. WOOD.

Unassessed premium note capital, \$11,619.26.

ASSETS.

Actual cash on hand at head office.....	\$870 26
Amount unpaid of assessments levied in 1885.....	76 27
“ “ “ 1883 (not extended).... \$17 70	
Amount of premium notes in force, after deducting all payments thereon and assessments levied	11,619 26
Total assets	<u>\$12,565 79</u>

LIABILITIES.—None.

RECEIPTS.

Cash at Head Office, as per last statement (not extended).....	\$773 89
Cash received as first payments, being part payment of premium notes ..	\$372 43
“ for assessments levied in 1885	195 16
“ “ “ before 1885.....	30 88
“ interest	44 59
“ transfer fee.....	0 25
Total receipts	<u>\$643 31</u>

EXPENDITURE.

Expenses of Management :

Amount paid for statutory assessment	\$ 7 59
“ printing and stationery	14 50
“ salary	79 00
“ agents' commission.....	39 50
“ incidentals	1 75
Expenses of management	<u>142 34</u>
Cash paid for losses which occurred during 1885.....	404 60
Total expenditure.....	<u>\$546 94</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	315,339 00	315,339 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	196	251,645 00
“ taken during 1885, new and renewed.....	140	184,465 00
Gross numbers and amount during 1885	336	436,110 00
Deduct expired and cancelled in 1885	94	120,771 00
Net risks in force on mutual system, 31st December, 1885	242	315,339 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	17,446 86	17,446 86
Amount of all premium notes, after deducting all payments thereon and assessments levied	11,619 26	11,619 26
Amount of premium notes received during the year 1885	7,402 40	7,402 40

LONDON TOWNSHIP MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ARVA.

*Commenced business 27th May, 1882.**President*—EDWARD ROBERTS.*Secretary*—ED. DANN.

Unassessed premium note capital, \$13,206.80.

ASSETS.

Cash in Royal Standard Loan Company at 31st December, 1885	\$ 81 04
Amount unpaid of assessments levied during 1885	49 95
Amount of premium notes in force, after deducting all payments thereon and assessments levied	13,206 80
Total assets	<u>\$13,337 79</u>

LIABILITIES—NONE.

RECEIPTS.

Cash on hand at head office (not extended)	\$91.70
“ received for assessments levied in 1885	\$1,290 66
“ “ “ during 1884	18 15
“ “ interest	7 19
“ “ carpenters' risk, etc.	3 12
Total receipts	<u>\$1,319 12</u>

EXPENDITURE.

Expenses of Management:

Amount paid for commission to agents	\$111 00
“ statutory assessment	14 28
“ printing, stationery and advertising	27 55
“ salaries, directors' and auditors' fees ...	25 70
“ postage	18 25
Total expenses of management	<u>196 78</u>
Cash paid for losses during 1885	1,133 00
Total expenditure	<u>\$1,329 78</u>

CURRENCY OF RISKS.

Amount covered by policies in force 31st December, 1885.

SYSTEM.	Three years.	Four years.	Five years.	Total.
Mutual	\$233,987 00	\$5,850 00	\$358,143 00	\$597,980 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	398	473,445 00
“ taken during 1885, new and removed	111	142,085 00
Gross number during 1885	509	615,530 00
Deduct expired and cancelled in 1885	20	17,550 00
Net risks in force 31st December, 1885	489	597,980 00

PREMIUM NOTES OR UNDERTAKINGS.

	Three years.	Four years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	4,260 95	136 80	11,104 33	15,502 08
Amount of all premium notes on policies in force December 31st, 1885, after deducting all payments thereon, and assessments levied				13,206 80
Amount of premium notes received during the year 1885	2,375 64		361 05	2,736 69

MCGILLIVRAY MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, WEST MCGILLIVRAY.

*Commenced business 2nd May, 1877.**President*—ANDREW ROBINSON.*Secretary*—WM. FRASER.

Unassessed premium note capital, \$7,641.96.

ASSETS.

Amount of cash at head office.....	\$ 202 85
Cash loan to municipality	2,000 00
Amount of notes or due bills less than one year overdue	135 00
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....	7,641 96
Total assets	<u>\$9,979 81</u>

LIABILITIES—None.

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$16 17
Cash received for membership fees, not being part payment of premium notes	\$1,177 20
Cash received for interest	131 92
“ promissory notes and other securities	2,091 30
Total receipts	<u>\$3,400 42</u>

EXPENDITURE.

Expenses of Management:

Amount paid for statutory assessment	\$8 64
“ printing, etc., etc.	18 75
“ salary, and auditors' fees	34 00
“ commission	100 50
Total expenses of management	<u>\$161 89</u>

Miscellaneous Payments:

Cash paid for losses which occurred during 1885.....	\$1,050 00
“ rebate.....	1 85
Total expenditure.....	<u>\$1,213 74</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	318,465 00	318,465 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force December 31st, 1884	288	286,185 00
“ taken during 1885, new and renewed	201	218,700 00
Gross number and amount of risks in force on 31st December, 1885	489	504,885 00
Deduct, expired and cancelled in 1885	175	186,420 00
Net risks in force December 31st, 1885	314	318,465 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessments	7,641 96	7,641 96
Amount of all premium notes, after deducting all payments thereon and assessments levied	7,641 96	7,641 96
Amount of premium notes received during year 1885.....	6,561 00	6,561 00

McKILLOP MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, LOT 17, CON. 5, M'KILLOP.

Commenced business May 20th, 1876.

President—THOS. E. HAYES.

Secretary—W. J. SHANNON.

Unassessed premium note capital, \$42,592.98.

ASSETS.

Actual cash on hand at head office.....	\$29 99
Amount unpaid of assessments levied during 1885.....	381 46
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....	42,592 98
Total assets	<u>\$43,004 43</u>

LIABILITIES.—NONE.

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$579 36
Cash received for assessments levied in 1885.....	\$3,551 34
“ “ “ years prior to 1885.....	178 55
“ interest	17 60
“ threshing permits etc.....	55 35
“ borrowed.....	1,700 00
Total receipts.....	<u>\$5,502 84</u>

EXPENDITURE.

Expenses of Management :

Amount paid for law costs.....	\$463 26
“ investigation and adjustment of claims.....	19 90
“ travelling expenses.....	15 00
“ statutory assessment.....	63 24
“ printing, stationery and advertising.....	27 50
“ salaries, directors' and auditors' fees.....	471 05
“ postage, telegrams and express.....	46 37
“ interest	90 44
Total expenses of management.....	<u>\$1,196 76</u>

Miscellaneous Payments :

Cash paid for losses which occurred before 1885.....	\$1,587 00
“ “ during 1885..	1,151 98
“ rebate and returned premiums.....	<u>\$3,098 98</u>
“ repayment of loans....	29 97
“ book case	1,700 00
“ reward, extinguishment of fire	6 50
“	20 00
Total expenditure	<u>\$6,052 21</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual	2,075,853 75	2,075,853 75

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	1656	2,095,713 75
“ new and renewed during 1885	313	413,165 00
Gross number during 1885	1969	2,508,878 75
Less expired and cancelled in 1885	368	433,025 00
Net risks in force on mutual system, 31st December, 1885	1601	2,075,853 75

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force December 31st, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	54,362 08	54,362 08
Amount of all premium notes, after deducting all payments thereon and assessments levied	42,592 98	42,592 98
Amount of premium notes renewed during the year 1885	10,904 00	10,904 00

NICHOL MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, FERGUS.

Commenced business 1st May, 1860.

President—WILLIAM TAYLOR. | *Secretary*—JOHN BEATTIE,
Unassessed premium note capital, \$59,464.67.

ASSETS.

Actual cash on hand at head office.....	\$ 2,367 96
Amount unpaid of assessments levied during 1885	2,831 95
“ “ in prior years (not extended)...\$430 20	
“ of short date notes or due bills, less than one year overdue.....	327 19
“ “ “ one year or more overdue (not extended).....	\$137 08
“ of premium notes in force, after deducting all payments thereon and assessments levied..	59,464 67
Total assets	<u>\$64,991 77</u>

LIABILITIES.

Amount of losses adjusted	2,538 50
“ “ supposed	250 00
“ “ money borrowed.....	3,250 00
Total liabilities	<u>\$6,038 50</u>

RECEIPTS.

Cash at head office as per last statement (not extended).....	\$616 40
Cash received for assessments on cancelled policies.....	1 58
“ as first payments, being part payment of premium notes....	995 21
“ for assessments levied in 1885.....	4,010 88
“ “ “ years prior to 1885.....	834 15
“ for due bills discharged.....	811 70
“ for interest.....	33 74
Cash borrowed	8,500 00
Total receipts ..	<u>\$15,187 26</u>

EXPENDITURE.

Expenses of Management :

Amount paid for interest.....	119 01
“ investigation and adjustment of claims	77 00
“ statutory assessment.....	62 75
“ printing, stationery and advertising.....	73 85
“ commission.....	924 00
Carried forward.....	<u>1,256 61</u>

<i>Brought forward</i>	\$1,256 61
Amount paid for salaries, directors' and auditors' fees	726 24
" postage, telegrams and express	56 80
" travelling expenses	20 00
" incidentals	18 63
Expenses of management	2,078 28
<i>Miscellaneous Payments:</i>	
Cash paid for losses which occurred prior to 1885	\$ 603 00
" " " during 1885	5,482 45
" rebate and refund	21 97
Repayment of loans	5,250 00
Total expenditure	<u>\$13,435 70</u>

CURRENCY OF RISKS.

Amount covered by Policies in force, 31st December, 1885.

SYSTEM.	Five years.	Total.
Mutual	\$2,167,207 00	\$2,167,207 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
Policies in force 31st December, 1884	1611	\$ 2,080,217 00
" new and renewed during 1885	616	800,935 00
Gross numbers and amount during 1885	2227	2,881,152 00
Less expired and cancelled in 1885	583	713,945 00
Net risks in force on mutual system, 31st December, 1885	1644	2,167,207 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
Amount of face of all premium notes held by Company and legally liable to assessment	\$ 71,035 80	\$ 71,035 80
Amount of all premium notes, after deducting all payments thereon and assessments levied	59,464 67	59,464 67
Amount of premium notes received during the year 1885	31,695 60	31,695 60

EAST AND WEST NISSOURI AND WEST ZORRA MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, KINTORE.

Commenced business 25th May, 1873.

President—GEO. A. MUNROE.

Secretary—E. J. PEARSON.

Unassessed premium note capital, \$64,603.34.

ASSETS.

Amount unpaid of assessments levied during 1885	\$1,499 35
“ of premium notes in force, after deducting all payments thereon and assessments levied	64,603 34
Total assets	<u>\$66,102 69</u>

LIABILITIES.

Amount of adjusted losses	\$902 50
“ loan	366 00
“ interest on loan	11 34
“ due Treasurer	51 24
Total liabilities	<u>\$1,331 08</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$107 45
“ received as first payments, being part payment of premium notes ...	\$146 00
“ “ for assessments levied in 1885	2,241 33
“ “ “ “ 1884	238 66
“ “ at head office for certificates to steam threshers	12 00
Cash borrowed	2,251 24
Total receipts	<u>\$4,889 23</u>

EXPENDITURE.

Expenses of Management:

Amount paid for statutory assessment	\$41 63
“ commission to agents	33 00
“ printing, stationery and advertising	80 90
“ rent	7 00
“ salaries, directors' and auditors' fees	227 05
“ investigation of claims	15 00
“ interest	43 16
“ postage, etc.	12 75
“ travelling expenses	2 00
“ incidentals	4 50
Expenses of management (<i>carried forward</i>)	<u>\$466 99</u>

Expenses of management (<i>brought forward</i>).....		\$466 99
<i>Miscellaneous Payments :</i>		
Cash paid for losses which occurred before 1885	\$2,652 69	
“ “ which occurred during 1885.....	43 00	
		2,695 69
Repayment of loans.		1,834 00
Total expenditure.....		<u>\$4,996 68</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	1,460,421 00	1,460,421 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	853	1,377,771 00
“ new and renewed during 1885.....	146	265,780 00
Gross number during 1885.....	999	1,643,551 00
Less expired and cancelled in 1885.....	112	183,130 00
Net risks in force on mutual system 31st December, 1885.....	887	1,460,421 00

CLASSIFICATION OF RISKS:

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	73,021 06	73,021 06
Amount of all premium notes, after deducting all payments thereon and assessments levied	64,603 34	64,603 34
Amount of premium notes received during the year 1885.....	13,289 00	13,289 00

NORFOLK COUNTY FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, SIMCOE.

Commenced business 30th January, 1882.

President—ROBT. Y. MABEE.

Secretary—WM. ROBERTS.

Unassessed premium note capital, \$10,572 10.

ASSETS.

Cash on deposit to Company's credit in Federal Bank of Canada, Simcoe..	\$1,657 50
“ in agents' hands.....	85 61
Amount of premium notes in force after deducting all payments thereon and assessments levied.....	10,572 10
Amount unpaid of assessments levied during 1884 (not extended)..	\$32.37
“ “ “ “ 1885	417 49
Total assets	\$12,732 70

LIABILITIES.

Amount of loss adjusted	\$1,250 00
Bill payable	700 00
Interest accrued	50 17
Amount due for salaries, rent, etc.....	598 40
Total liabilities.....	\$2,598 57

RECEIPTS.

Cash at head office as per last statement (not extended).....	\$939.71
Cash received as first payments on deposits, being part payment of premium notes	\$570 83
Cash received for assessments levied in 1885.....	2,949 97
“ “ “ “ former years.....	200 17
“ “ for interest.....	1 42
“ “ for transfer and other fees	24 74
Total receipts.....	\$3,747 13

EXPENDITURE.

Expenses of Management:

Amount paid for commission	\$130 74
“ “ law costs.....	10 00
“ “ printing, stationery and advertising	62 96
“ “ interest.....	114 25
“ “ rent and taxes.....	52 00
“ “ statutory assessment	31 47
“ “ salaries, directors' and auditors' fees	582 90
“ “ postage, telegrams and express	38 72
“ “ investigation of claims	19 00
“ “ travelling expenses.....	8 00
“ “ sundries.....	0 40

Expenses of management (*carried forward*)..... \$1,050 44

Expenses of management (<i>brought forward</i>).....	\$1,050 44
<i>Miscellaneous expenses :</i>	
Cash paid for losses which occurred before 1885	\$2.00
“ “ “ “ during 1885	1,878.50
	1,880 50
“ “ reinsurances.....	30 75
“ “ rebate	39 01
Total expenditure.....	<u>\$3,000 70</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	1,106,749 00	1,106,749 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1,150	1,043,361 00
“ new and renewed during 1885.....	519	514,938 00
Gross number during 1885.....	1,669	1,558,299 00
Less expired and cancelled in 1885	489	451,550 00
Net risks in force 31st December, 1885	1,180	1,106,749 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes legally liable to assessment.....	16,682 33	16,682 33
Amount of all premium notes after deducting all payments thereon and assessments levied	10,572 10	10,572 10
Amount of premium notes received during the year 1885	7,560 33	7,560 33

ONEIDA FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, TOWN HALL, ONEIDA.

*Commenced business, 27th March, 1875.**President*—GEO. FLEMING.*Secretary*—JOHN SENN.

Unassessed premium note capital, \$7,599.00.

ASSETS.

Actual cash on hand at head office.....	\$153 25
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....	7,599 00
Total assets	<u>\$7,752 25</u>

LIABILITIES—None.

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$111.72
Cash received at taking of applications	\$100 25
" for steam threshing certificates	21 00
" " sundries	28 90
Total receipts	<u>\$150 15</u>

EXPENDITURE.

Expenses of Management:

Amount paid for fuel and light	\$2 00
" " statutory assessment or certificate	12 62
" " printing and stationery	14 00
" " salaries, directors' and auditors' fees ...	78 00
" " books and stationery	2 00
Total expenditure.....	<u>\$108 62</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Four years.	Five years.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Mutual.....	311,929 00	650 00	117,775 00	430,354 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ cts.
Policies in force 31st December, 1884	337	418,168 00
New and renewed during 1885.....	106	149,441 00
Gross number during 1885.....	443	567,609 00
Less expired and cancelled in 1885.....	105	137,255 00
Net risks in force on mutual system, 31st December, 1885.....	338	430,354 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous :

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1884.

	Three year risks.	Four year risks.	Five year risks.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Amount of face of all premium notes held by company and legally liable to assessment.....	6,401 16	13 00	2,484 75	8,898 91
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	5,720 78	8 97	1,769 25	7,599 00
Amount of premium notes received during the year 1885.....	3,515 08			3,515 08

OXFORD FARMERS' MUTUAL FIRE INSURANCE COMPANY.

•
HEAD OFFICE, EMBRO.

Commenced business 2nd June, 1884.

President—ALEX. MCCORQUODALE.

| *Secretary*—ROBT. MURRAY.

Unassessed premium note capital, \$17,567.35.

ASSETS.

Amount unpaid of assessments levied during 1885	\$75 45
Amount of premium notes in force, after deducting all payments thereon and assessments levied	17,567 35
Total assets	<u>\$17,642 80</u>

LIABILITIES.

Amount due Treasurer	\$46 45
Total liabilities	<u>\$46 45</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$33 50
Cash received as first payments, being part payment of premium notes ..	\$160 00
" for assessments levied during 1885	645 70
" " borrowed money	721 45
Total receipts	<u>\$1,527 15</u>

EXPENDITURE.

Expenses of Management :

Cash paid for printing and stationery	\$28 00
" interest	24 43
" statutory assessment	8 62
" rent and taxes	13 00
" salaries, etc., 1884, 1885	223 50
" postage, etc.	20 10
	<u>317 65</u>
Cash paid for losses during 1885	568 00
" being repayment of loans	675 00
Total expenditure	<u>\$1,560 65</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year.	Two years.	Three years.	Four years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mutual.....	800 00	1,800 00	1,800 00	11,100 00	454,925 00	470,425 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force December 31st, 1885.....	246	285,725 00
“ taken during 1885, new and renewed.....	160	193,250 00
Gross number during 1885.....	406	478,975 00
Deduct expired and cancelled in 1885.....	8	8,550 00
Net risks in force at December 31st, 1885.....	398	470,425 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	One year risks.	Two year risks.	Three year risks.	Four year risks.	Five year risks.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.	32 00	72 00	72 00	444 00	18,066 50	18,686 50
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	29 40	65 40	66 12	420 16	16,986 27	17,567 35
Amount of premium notes received during the year 1885.	32 00	16 00	24 00	372 00	7,291 00	7,735 00

COUNTY OF PEEL FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, BRAMPTON.

*Commenced business 24th June, 1876.**President*—THOMAS HOLTBY.*Secretary*—LUTHER CHEYNE.

Unassessed premium note capital, \$39,701.67.

ASSETS.

Actual cash on hand at head office.....	\$438 38
Amount unpaid of assessments levied during 1885	1,753 07
“ “ “ in prior years (not extended) \$804.86	
Amount of premium notes in force, after deducting all payments thereon and assessments levied	39,701 67
Total assets	<u>\$41,893 12</u>

LIABILITIES.

Amount for printing and stationery	\$66 15
“ salaries and directors' fees	233 45
“ rent.....	50 00
“ stamps.....	50 70
“ due ex-Treasurer.....	73 74
“ “ Treasurer.....	11 05
Total liabilities.....	<u>\$485 09</u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$770.61
“ received as first payment, being part payment of premium notes.....	\$646 08
“ “ for assessments levied in 1885.....	1,616 56
“ “ “ “ years prior to 1885.....	958 34
“ “ for engine licenses and carpenters' risks.....	6 76
“ “ borrowed money.....	881 00
Total receipts	<u>\$4,108 74</u>

EXPENDITURES.

Expenses of Management:

Amount paid for commission to agents	\$175 00
“ investigation and adjustment of claims.....	4 20
“ interest.....	18 50
“ statutory assessment	75 85
“ printing, stationery and advertising	20 20
“ salaries, directors' and auditors' fees.....	706 45
“ postage, telegrams and express.....	27 45
“ rent	22 00
“ incidental expenses.....	34 58
Total expenses of management..	<u>\$1,084 23</u>

Total expenses of management (*brought forward*)... .. \$1,084 23

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	\$980.00	
" " " prior to 1885.....	1,500.24	2,480 24
" repayment of loans.		881 00
Total expenditure.....		<u>\$4,445 47</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Four years.	Total.
	\$ c.	\$ c.
Mutual.....	2,617,639 00	2,617,639 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1,949	2,559,087 00
" new and renewed during 1885.....	410	633,905 00
Gross number during 1885.....	2,359	3,192,992 00
Less expired and cancelled in 1885.....	484	575,353 00
Net risks in force on mutual system, 31st December, 1885.....	1,873	2,617,639 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

II MIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Four year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	54,261 94	54,261 94
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	39,701 67	39,701 67
Amount of premium notes renewed during the year 1885.....	13,029 04	13,029 04

PUSLINCH MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ABERFOYLE.

Commenced business May, 1859.

President—DUNCAN MCFARLANE.

Secretary—JAMES SCOTT.

Unassessed premium note capital, \$7,923.41.

ASSETS.

Cash on hand at head office	\$26 99	
Cash on deposit to Company's credit in Bank of Commerce, Guelph	493 00	\$519 99
Amount of premium notes in force, after deducting all payments thereon and assessments levied	\$7,923 41	
Less residue of premium notes given for reinsurance	31 20	7,892 21
Total assets		<u>\$8,412 20</u>

LIABILITIES.

Amount of adjusted losses	\$10 00
Total liabilities	<u>\$10 00</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$465 83
Cash received for membership fees, not being part payment of premium notes	\$10 50
Cash received as first payments, being part payment of premium notes ..	146 52
" for interest	16 83
Total receipts	<u>\$173 85</u>

EXPENDITURE.

Expenses of Management :

Amount paid for statutory assessment	\$11 39
" printing, stationery and advertising	17 00
" auditors' fees	10 00
" postage, telegrams and express	3 50
" travelling expenses	3 00
Total expenses of management	<u>\$44 89</u>
Amount paid for losses which occurred before 1885	\$12 00
" " " during 1885	42 00
" reinsurances	54 00
	20 80
Total expenditure	<u>\$119 69</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	416,725 00	416,725 00
Reinsured	3,000 00	3,000 00
Net risks carried by Company 31st December, 1885	413,725 00	413,725 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force December 31st, 1884	222	379,840 00
“ new and renewed during 1885	81	150,045 00
Gross number and amount during 1885	303	529,885 00
Less expired and cancelled in 1885	63	113,160 00
Net risks in force on mutual system December 31st, 1885	240	416,725 00

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	8,334 50	8,334 50
Amount of all premium notes, after deducting all payments thereon and assessments levied	7,923 41	7,923 41
Amount of premium notes renewed during the year 1885	3,000 90	3,000 90
Residue “ “ given for reinsurance	31 20	31 20

SALTFLEET AND BINBROOK MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ELFRIDA.

*Commenced business 30th July, 1880.**President*—A. D. LEE.*Secretary*—JNO. C. HARRIS.

Unassessed premium note capital, \$5,457.02.

ASSETS.

Actual cash on hand at head office.....	\$28 83
Amount of assessments which were levied before 1885 (not extended)	\$36 65
Amount unpaid of short date notes, or due bills, less than one year overdue.	7 18
“ “ “ one year or more overdue (not extended)	\$6 91
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....	5,457 02
Total assets	<u>\$5,493 03</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$285 72
Cash received for fees or surveys.....	\$5 00
“ first payments, being part payment of premium notes..	212 79
“ assessments which were levied in years prior to 1885....	88 20
Total receipts	<u>\$305 99</u>

EXPENDITURE.

Expenses of Management :

Amount paid to agents for fees and commission.....	\$67 50
“ for statutory assessment	10 65
“ printing, stationery and advertising.....	31 48
“ salaries, directors' and auditors' fees.....	142 37
“ postage, telegrams and express.....	3 30
“ fuel and light....	1 50
Total expenses of management	<u>\$256 80</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	277 90
Total expenditure	<u>\$534 70</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	381,905 00	381,905 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	290	352,850 00
“ new and renewed during 1885	88	102,015 00
Gross number during 1885.....	378	454,865 00
Less expired and cancelled in 1885	66	72,960 00
Net risks in force 31st December, 1885.....	312	381,905 00

CLASSIFICATION OF RISKS:

Farm and non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	6,461 70	6,461 70
Amount of all premium notes, after deducting all payments thereon and assessments levied	5,457 02	5,457 02
Amount of premium notes received during the year 1885	1,551 54	1,551 54

SAUGEEN MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, MOUNT FOREST.

*Commenced business March, 1877.**President*—JAMES MURDOCK.*Secretary*—HENRY L. DRAKE.

Unassessed premium note capital, \$29,651.45.

ASSETS.

Amount unpaid of assessment levied during 1885	\$4,444 95
“ “ “ in prior years (not extended), \$1,272.63	
“ of premium notes in force, after deducting all payments thereon and assessments levied	\$29,651 45
Less premium notes given by Company for reinsurance	439 24
	<u>29,212 21</u>
Total assets	<u>\$33,657 16</u>

LIABILITIES.

Amount of reported loss	\$375 00
“ unpaid loans	7,500 00
“ due for sundry accounts	8 30
	<u>\$7,883 30</u>
Total liabilities	<u>\$7,883 30</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$1,518.18
Cash received as first payments, being part payment of premium notes...	\$1,624 71
“ for assessments levied in 1885	1,097 75
“ “ “ prior to 1885	3,961 52
“ for interest	4 79
Cash borrowed	7,500 00
Cash received for refunds	43 77
“ fees and extra premiums	27 77
Total receipts	<u>\$14,260 31</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission to agents	\$939 23
“ law costs	5 53
“ interest	557 45
“ statutory assessment or certificate	38 29
“ printing, stationery and advertising	103 38
“ salaries, directors' and auditors' fees	652 35
“ postage, telegrams and express	43 91
“ investigation and adjustment of claims	57 91
“ fuel, light, rent and office fittings	48 35
“ travelling expenses	4 00
Expenses of management	\$2,450 40

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	\$5,819 70
“ “ “ prior to 1885	3,295 78
	<u>\$9,115 48</u>
“ rebate, abatement and returned premiums	119 04
“ reinsurances	157 11
“ repayment of loan	3,800 00
“ secretary for salary, 1884	136 46
Total expenditure	<u>\$15,778 49</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1884.

	One year.	Three years.	Total.
	\$ c.	\$ c.	\$ c.
Mutual	15,250 00	1,332,006 00	1,347,256 00
Of which was reinsured		12,596 00	12,596 00
Net risks			<u>1,334,660 00</u>

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1460	1,269,356 00
“ new and renewed during 1885	630	572,731 00
Gross number during 1885.....	2090	1,842,087 00
Less expired and cancelled in 1885.....	584	494,831 00
Net risks in force 31st December, 1885.....	1506	1,347,256 00

BUSINESS DONE BY COMPANY.

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	One year risks.	Three year risks.	Total.
	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	361 96	40,504 80	40,866 75
Amount of premium notes, after deducting all pay- ments thereon and assessments levied			29,651 45
Amount of premium notes received during the year 1885.....			19,774 59
Residue of premium notes given by the Company for reinsurances			439 24

SIMCOE COUNTY MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, KEENANSVILLE.

*Commenced business 21st June, 1878.**President*—P. B. SKELLY.*Secretary*—THOMAS R. CARMICHAEL.

Unassessed premium note capital, \$3,333.82.

ASSETS.

Amount unpaid of assessments levied during 1885.....	\$150 50
“ of premium notes in force, after deducting all payments thereon and assessments levied.....	3,333 82
Total assets..	<u>\$3,484 32</u>

LIABILITIES.

Balance due treasurer.....	\$59 23
Total Liabilities.....	<u>\$59 23</u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$24 82
Cash received for fees (not being part payment of premium notes)....	\$12 50
“ assessments levied in years prior to 1885.....	199 50
“ borrowed.....	180 00
Total receipts.....	<u>\$392 00</u>

EXPENDITURE.

Expenses of Management :

Amount paid for salaries, directors' and auditors' fees.....	\$81 00
“ statutory assessment	5 25
“ printing and stationery	21 75
“ postage	5 15
“ interest	2 90
Total expenses of management	<u>\$116 05</u>
Cash paid for losses which occurred during 1885.....	180 00
“ repayment of loan.	180 00
Total expenditure.....	<u>\$476 05</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Total.
	\$ c.
Mutual	192,406 08

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	115	151,712 08
New and renewed during 1885.....	46	72,402 00
Gross number during 1885.....	161	224,114 08
Less expired and cancelled in 1885.....	24	31,708 00
Net risks in force 31st December, 1885.....	137	192,406 08

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Five year risks.	Total.
	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	3,504 52	199 70	3,704 22
Amount of all premium notes, after deducting all pay- ments thereon and assessments levied	3,154 12	179 70	3,333 82
Amount of premium notes received during the year 1885.	1,548 05	.....	1,548 05

THE SOUTHWOLD FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, SHEDDEN.

*Commenced business 9th September, 1878.**President*—DONALD TURNER.*Secretary*—R. N. STAFFORD.

Unassessed premium note capital, \$8,742.88.

ASSETS.

Actual cash in hand at head office	\$164 81
Amount unpaid of assessments levied during 1885	199 05
Amount of premium notes in force, after deducting all payments thereon and assessments levied	8,742 88
Total assets	<u>\$9,106 74</u>

LIABILITIES—None.**RECEIPTS.**

Cash at head office, as per last statement (not extended)	\$691 74
Cash received at taking of application	\$56 00
“ for assessment levied in 1885	3,033 63
“ “ in years prior to 1885	84 25
“ interest	9 25
Cash borrowed	450 00
Total receipts	<u>\$3,633 13</u>

EXPENDITURE*Expenses of Management:*

Amount paid for law costs	\$5 00
“ statutory assessment	19 81
“ printing and stationery	4 95
“ salaries, secretary's and auditors' fees	212 50
“ postage	9 80
“ interest	20 00
“ travelling expenses	10 00
“ incidental “	8 00

Total expenses of management	290 06
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Miscellaneous Payments:

Cash paid for losses which occurred during 1885	\$3,420 00
“ repayment of loan	450 00

Total expenditure	<u>\$4,160 06</u>
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CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	660,150 00	660,150 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	492	649,150 00
Policies new and renewed during 1885.....	112	169,350 00
Gross number during 1885.....	604	818,500 00
Less expired and cancelled in 1885.....	111	158,350 00
Net risks in force on mutual system 31st December, 1885.....	493	660,150 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	13,203 00	13,203 00
Amount of all premium notes, after deducting all payments thereon and assessments levied.....	8,742 88	8,742 88
Amount of premium notes received during the year 1885.....	3,387 00	3,387 00

SYDENHAM MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ANNAN.

*Commenced business September, 1869.**President*—GIDEON HARKNESS.*Secretary*—HUGH REID.

Unassessed premium note capital, \$35,678.72.

ASSETS.

Cash on hand	\$46 19	
" deposit in the Post Office Savings Bank, Owen Sound.	180 69	
" " Molson's Bank, Owen Sound	153 00	
" " Telford & Co.'s Bank	1,105 65	
		<u>\$1,485 53</u>
Cash in agents' hands, acknowledged by them to be due, and considered good		120 11
Amount unpaid of assessments, levied before 1885 (not extended)	\$4 92	
Amount of premium notes in force, after deducting all payments thereon and assessments levied		35,678 72
Total assets		<u>\$37,284 36</u>

LIABILITIES.—None.

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$1,217 88	
Cash received for fees		\$285 50
" as first payments, being part payment of premium notes ..		730 27
" for assessments levied in years prior to 1885		7 89
" interest		37 65
" licenses		50 00
" advertisements in annual report		38 00
Total receipts		<u>\$1,149 31</u>

EXPENDITURE.

Expenses of Management:

Amount paid for law costs	\$10 00
" investigation and adjustment of claims	4 00
" statutory assessment or certificate	49 51
" printing, stationery and advertising	76 35
" rent and taxes	10 00
" salaries, directors' and auditors' fees	234 50
" postage, telegrams and express	32 30
" travelling expenses	12 00

Expenses of management \$428 66*Miscellaneous Payments:*

Cash paid for losses which occurred during 1885	440 00
" other expenses	13 00

Total expenditure \$881 66

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Two years.	Three years.	Four years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mutual	12,950 00	8,740 00	1,564,094 00	60,161 00	161,526 00	1,807,471 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1,481	1,641,128 00
“ new and renewed during 1885.....	583	713,961 00
Gross number during 1885.....	2,064	2,355,089 00
Less expired and cancelled in 1885.....	429	547,618 00
Net risks in force 31st December, 1885	1,635	1,807,471 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	One year risks.	Two year risks.	Three year risks.	Four year risks.	Five year risks.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	263 50	186 25	32,580 67	1,153 55	3,444 26	37,628 23
Amount of all premium notes, after deducting all payments thereon and assessments levied	255 28	163 16	30,960 84	1,099 29	3,200 15	35,678 72
Amount of premium notes received during the year 1885.....	188 75	82 25	13,831 08	296 90	507 80	14,906 78

TOWNSEND FARMERS' MUTUAL FIRE INSURANCE COMPANY.

Commenced business 10th April, 1879.

HEAD OFFICE, WATERFORD.

President—OSCAR McMICHAEL*Secretary*—LYMAN N. COLLVER.

Unassessed premium note capital, \$10,980.34.

ASSETS.

Actual cash on hand at head office.....	\$259 57
Amount unpaid of assessments levied in years during 1885	91 66
“ “ “ “ prior to 1884 (not extended).....	\$6.81
Amount of premium notes in force, after deducting all payments thereon and assessments levied	10,980 34
Total assets	\$11,331 57

LIABILITIES—None.

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$56.66
Cash received at taking of applications.....	\$305 00
“ at first payments, being part payment of premium notes....	226 98
“ for assessments levied in 1885.....	3,166 73
“ “ years prior to 1885.....	30 78
Total receipts	\$3,729 49

EXPENDITURE.

Expenses of Management :

Amount paid agents for fees	\$183 00
“ “ for statutory assessment	26 92
“ “ printing, stationery, advertising and postage.....	23 75
“ “ salaries, directors' and auditors' fees.....	261 80
“ “ law costs.....	15 00
“ “ postage, etc	23 30
Total expenses of management	\$533 77

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	2990 00
“ rebate	2 81
Total expenditure	\$3,526 58

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	916,490 00	916,490 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	650	892,410 00
“ new and renewed during 1885	244	353,755 00
Gross number during 1885.....	894	1,246,165 00
Less expired and cancelled in 1885.....	247	329,675 00
Net risks in force on mutual system 31st December, 1885.....	647	916,490 00

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	14,864 89	14,864 89
Amount of all premium notes, after deducting all payments thereon and assessments levied	10,980 34	10,980 34
Amount of premium notes received during the year 1885.....	5,661 21	5,661 21

THE USBORNE AND HIBBERT MUTUAL FIRE INSURANCE COMPANY.
HEAD OFFICE, FARQUHAR.*Commenced business 28th June, 1876.**President*—ROBT. GARDINER.*Secretary*—N. J. CLARK.

Unassessed premium note capital, \$22,487.62.

ASSETS.

Actual cash on hand at head office.....	\$716 81
Amount unpaid of assessments levied during 1885.....	117 44
“ “ before 1885 (not extended)...\$1 62	
“ of premium notes in force, after deducting all payments thereon and assessments levied.....	22,487 62
Total assets.....	<u>\$23,321 87</u>

LIABILITIES.—None.**RECEIPTS.**

Cash at head office, as per last statement (not extended).....	\$98 96
“ received for assessments levied in 1885.....	\$1,544 37
“ “ “ before 1885.....	7 25
“ borrowed.....	500 00
Total receipts.....	<u>\$2,051 62</u>

EXPENDITURE.*Expenses of Management:*

Amount paid for investigation of claims.....	\$8 00
“ interest.....	10 00
“ statutory assessment.....	33 37
“ printing, stationery and advertising.....	27 25
“ rent and taxes.....	20 00
“ salaries, directors' and auditors' fees.....	216 50
“ travelling expenses.....	15 30
“ postage, telegrams and express.....	44 61
“ incidental expenses.....	21 16

Expenses of management.....	<u>\$396 19</u>
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Miscellaneous Payments:

Amount paid for losses which occurred during 1885.....	\$537 58
“ for repayment of loans.....	500 00
Total expenditure.....	<u>\$1,433 77</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual.....	1,377,055 00	1,377,055 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	365	1,105,640 00
“ new and renewed during 1885.....	286	333,540 00
Gross number during 1885.....	1,151	1,494,180 00
Less expired and cancelled in 1885... ..	110	117,125 00
Net risks in force on mutual system 31st December, 1885.....	1,041	1,377,055 00

CLASSIFICATION OF RISKS :

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	30,167 53	30,167 53
Amount of all premium notes, after deducting all payments thereon and assessments levied	22,487 62	22,487 62
Amount of premium notes received during the year 1885.....	8,455 79	8,455 79

VICTORIA MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, HAMILTON.

Commenced business November, 1863.

President—GEO. H. MILLS.

Secretary—W. D. BOOKER.

Unassessed premium note capital, \$30,151.04.

ASSETS.

Cash on hand at head office	\$165 93	
Postage stamps	26 86	
		<hr/>
		\$192 79
Amount unpaid of assessments levied during 1885		737 05
“ “ “ in prior years (not extended)	\$687 08	
Amount of short date notes or due bills, less than one year overdue		231 20
“ “ “ one year or more over- due (not extended)	102 42	
Amount of premium notes in force, after deducting all payments thereon and assessments levied		30,151 04
Due by W. W. Branch (not extended)	\$6,546 60	
Division Court costs (not extended)	45 77	
Office furniture (not extended)	100 00	
Total assets		<hr/> <u>\$31,312 08</u>

LIABILITIES.

Deposits for future assessments	\$43 25
Agency	411 94
Total liabilities	<hr/> <u>\$455 19</u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$688 68
Postage stamps.....	76 31
	<u>\$764 99</u>
Cash as first payments, being part payment of premium notes.....	\$1,327 55
Cash received for assessments levied in 1885	2,771 77
“ “ “ years prior to 1885	592 58
Cash received for interest	6 88
“ for carpenters' risks	10 14
“ Division Court costs	4 03
“ assessments in advance	12 00
Total receipts	<u>\$4,724 95</u>

EXPENDITURE.

Expenses of Management :

Amount paid for commission	\$652 15
“ investigation and adjustment of claims..	19 62
“ legal expenses	5 34
“ printing, stationery and advertising.....	165 45
“ rent and taxes	390 40
“ salaries, directors' and auditors' fees.....	2,710 00
“ postage, telegrams and express.....	32 06
“ fuel and light	42 96
“ statutory assessment	49 26
“ office contingencies	55 90
Total expenses of management	<u>\$4,123 14</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	1,110 73
“ rebate	6 48
“ agencies	\$40 09
“ bills receivable	16 71
	<u>56 80</u>
Total expenditure	<u>\$5,297 15</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ cts.	\$ cts.
Mutual	1,135,568 00	1,135,568 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	932	1,135,398 00
Policies new and renewed during 1885	294	371,215 00
Gross number during 1885	1,226	1,506,613 00
Less expired and cancelled in 1885	288	371,045 00
Net risks on in force on mutual system 31st December, 1885	938	1,135,568 00

BUSINESS TRANSACTED :

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	39,535 25	39,535 25
Amount of all premium notes, after deducting all payments thereon and assessments levied	30,151 04	30,151 04
Amount of premium notes received during the year 1885	12,485 15	12,485 15

WALPOLE FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, JARVIS.

Commenced business 27th July, 1867.

President—CHARLES SIMON.

Secretary—JOHN HEASMAN.

Unassessed premium note capital, \$23,052.18.

ASSETS.

Cash on hand at head office.....	\$206 22	
Cash on deposit in Bank of Commerce, Simcoe.....	700 00	
		\$906 22
Cash in agents' hands, acknowledged by them to be due, and considered good		34 16
Amount unpaid of assessments levied during 1885		7 08
Amount of premium notes in force, after deducting all payments thereon and assessments levied		23,052 18
Total assets		<u>\$23,999 64</u>

LIABILITIES—None.

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$630 97	
Cash received at taking of applications.....		\$373 50
“ as first payments, being part payment of premium notes....		302 24
“ for assessments levied in 1885		959 38
“ “ “ years prior to 1885		12 94
Total receipts		<u>\$1,648 06</u>

EXPENDITURES.

Expenses of Management :

Amount paid to agents for commission and fees on application	\$134 50
“ for travelling expenses	8 00
“ statutory assessment	35 66
“ printing, stationery and advertising	25 75
“ salaries, director's and auditors' fees	308 80
“ postage, telegrams and express	20 50
“ fuel and light	5 00
Total expenses of management	<u>\$538 21</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	\$831 10
“ incidental expenses	3 50
Total expenditure	<u>\$1,372 81</u>

CURRENCY OF RISKS.

	One year or less.	Two years.	Three years.	Four years.	Five years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount covered by policies in force December 31st, 1885....	3,570 00	6,255 00	283,375 00	14,250 00	876,505 00	1,183,955 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	770	1,182,475 00
“ “ new and renewed during 1885	225	327,095 00
Gross number during 1885.....	995	1,509,570 00
Less expired and cancelled in 1885.....	211	325,615 00
Net risks in force 31st December, 1885.....	784	1,183,955 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1884.

	One year risks.	Two year risks.	Three year risks.	Four year risks.	Five year risks.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment....	18 14	60 37	3,904 67	290 02	22,620 58	26,893 78
Amount of all premium notes, after deducting all payments thereon and assessments levied..	17 41	50 81	3,415 57	251 56	19,316 83	23,052 18
Amount of premium notes re- ceived during the year 1885....	18 14	29 92	2,011 37	85 00	4,655 32	6,799 75

NORTH WATERLOO FARMERS' MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, WATERLOO.

*Commenced business 1st August, 1874.**President*—JOHN HAYES.*Manager*—LEVI STAUFFER.

Unassessed premium note capital, \$108,493.47.

ASSETS.

Cash on hand at head office	\$68 31
Amount unpaid of assessments levied during 1885	726 37
“ “ “ “ in prior years (not extended) \$78 45	
“ of premium notes in force, after deducting all payments thereon and assessments levied.....	\$108,493 47
Total assets.....	<u>\$109,288 15</u>

LIABILITIES.—None.

RECEIPTS.

Cash received for assessments levied in 1885.....	3,324 43
“ “ “ “ years prior to 1885.....	403 16
Cash borrowed	1,000 00
Total receipts.....	<u>\$4,727 59</u>

EXPENDITURE.

Expenses of Management :

Amount paid for investigation and adjustment of claims.....	\$7 00
“ interest	146 24
“ statutory assessment	65 95
“ printing, stationery and advertising.....	35 68
“ salaries, directors' and auditors' fees.....	540 00
“ postage, telegrams and express	63 45
“ incidentals.....	18 30
Expenses of management	<u>\$876 62</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	988 00
“ loans repaid	2,794 66
Total expenditure	<u>\$4,659 28</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	2,338,344 00	2,338,344 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	1252	2,186,883 00
“ new and renewed during 1885	310	590,765 00
Gross number during 1885.....	1562	2,777,648 00
Less expired and cancelled in 1885....	247	439,304 00
Net risks in force on mutual system December 31st, 1885.....	1315	2,338,344 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	126,652 53	126,652 53
Amount of premium notes, after deducting all payments thereon and assessments levied	108,493 47	108,493 47
Amount of premium notes renewed during the year 1885	30,009 00	30,009 00

WEST WAWANOSH MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, ST. HELENS.

*Commenced business 13th May, 1879.**President*—CHAS. GIRVIN.*Secretary*—ROBT. MURRAY.

Unassessed premium note capital, \$62,437.13.

ASSETS.

Actual cash on hand at head office.....	\$155 00
Amount unpaid of assessments levied during 1885	147 49
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....	62,437 13
Total assets	\$62,739 62

LIABILITIES.

Bills payable.....	\$1,000 00
Total liabilities	\$1,000 00

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$222 92
“ “ at taking of applications.....	\$210 50
Cash received as first payments, being part payment of premium notes....	312 29
“ for assessments levied in 1885.....	1,229 00
“ “ before 1885	100 36
“ from steam-thresher certificates	26 75
“ borrowed money	400 00
Total receipts	\$2,278 90

EXPENDITURE.

Expenses of Management :

Amount paid for interest	\$70 00
“ statutory assessment.....	40 09
“ printing, stationery and advertising.....	71 50
“ salaries, directors' and auditors' fees.....	630 14
“ postage, telegrams and express.....	50 53
“ fuel and light.....	1 75
Expenses of management.....	\$864 01

Miscellaneous Payments :

Cash paid for losses which occurred during 1885.....	\$1,435 87
“ refunds	40 44
“ sundries.....	6 50
Total expenditure.....	\$2,346 82

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual	1,650,284 00	1,650,284 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	422	520,047 00
New and renewed during 1885	1,139	1,328,671 00
Gross number during 1885	1,561	1,848,718 00
Less expired and cancelled in 1885	183	198,434 00
Net risks in force 31st December, 1885	1,378	1,650,284 00

CLASSIFICATION OF RISKS:

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five year risks.	Total.
	\$ c.	\$ c.
Amount of all premium notes, after deducting all payments thereon and assessments levied	62,437 13	62,437 13
Amount of premium notes received during the year 1885	20,801 75	20,801 75

THE MUTUAL FIRE INSURANCE COMPANY OF THE COUNTY OF
WELLINGTON.

HEAD OFFICE, GUELPH.

Commenced business, September, 1840.

President—FRED W. STONE.

Secretary—CHARLES DAVIDSON.

Unassessed premium note capital, \$310,779.34.

ASSETS.

Cash on hand at head office.....	\$586.98	
“ deposit to Company's credit in Bank of Commerce, Guelph.....	4,787.55	\$5,374 53
Cash in agents' hands, acknowledged by them to be due and considered good.....		328 29
Amount unpaid of assessments levied during 1885.....		7,047 98
“ “ “ in prior years (not ex- tended)	\$574.77	
“ unpaid due bills less than one year overdue		337 60
“ of premium notes in force, after deducting all payments thereon and assessments levied.....		310,779 34
Total assets		<u>\$323,867 74</u>

LIABILITIES.

Amount of outstanding accounts	\$9 11
Total liabilities.....	<u>\$9 11</u>

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$1,369.63	
“ received as first payments, being part payment of premium notes.....		\$9,459 49
“ “ for assessments levied in 1885.....		6,795 78
“ “ “ “ years prior to 1885.....		8,368 44
“ agents' balances		424 80
“ received from carpenters' risks.....		34 19
Carried forward.....		<u>\$25,082 70</u>

<i>Brought forward</i>	\$25,082 70
Cash received from interest.....	201 18
“ “ promissory notes, &c.....	136 05
“ “ real estate.....	173 60
“ “ other sources.....	19 81
Total receipts.....	<u>\$25,613 34</u>

EXPENDITURE.

Expenses of Management:

Amount paid for commissions to agents.....	\$3,190 81
“ law costs.....	43 41
“ fuel and light.....	47 40
“ investigation and adjustment of claims.....	176 33
“ statutory assessment.....	87 70
“ printing, stationery, and advertising.....	347 95
“ rent and taxes.....	92 75
“ salaries, directors' and auditors' fees.....	3,079 70
“ travelling expenses.....	74 07
“ postage, telegrams and express.....	257 73
Expenses of management.....	<u>\$7,397 85</u>

Miscellaneous Payments:

Cash paid for losses which occurred during 1885.....	\$16,709 90
“ rebate, abatements and return premiums.....	434 67
“ office furniture.....	85 90
“ agents.....	99 42
Total expenditure.....	<u>\$24,727 74</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual.....	3,210,043 00	3,210,043 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884.....	2,354	2,906,924 00
“ new and renewed during 1885	1,033	1,347,790 00
Gross number and amount during 1885.....	3,387	4,254,714 00
Less expired and cancelled in 1885	769	1,044,671 00
Net risks in force on mutual system, 31st December, 1885	2,618	3,210,043 00

BUSINESS TRANSACTED BY COMPANY:

General Fire Insurance.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	347,385 50	347,385 50
Amount of all premium notes, after deducting all payments thereon and assessments levied	310,779 34	310,779 34
Amount of premium notes received during the year 1885.....	158,357 92	158,357 92

THE WESTMINSTER MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, LOT 14, CON. 4, WESTMINSTER.

Commenced business 11th December, 1857.

President—ANDREW WELDON.

Secretary—HENRY ANDERSON.

Unassessed premium note capital, 17,907.57.

ASSETS.

Cash on deposit to the Company's credit, not drawn against in		
Canadian Trust and Loan Company, London	\$1,144 20	
London Loan and Savings Company, London	5,479 74	
		\$6,623 94
Amount of premium notes in force, after deducting all payments thereon and assessments levied		17,907 57
Total assets		<u>\$24,531 51</u>

LIABILITIES.

Amount due Treasurer	\$00 88
Total liabilities	<u>\$00 88</u>

RECEIPTS.

Cash at head office, as per last statement (not extended)	\$7 06
Cash received for assessments levied in 1885	\$2,069 31
“ interest	364 47
“ membership fees	146 60
Total receipts	<u>\$2,580 38</u>

EXPENDITURE.

Expenses of Management :

Amount paid for investigation and adjustment of claims	\$24 00
“ statutory assessment or certificate	34 36
“ printing, stationery and advertising	29 00
“ salaries, directors' and auditors' fees	387 50
“ incidentals	5 00
Expenses of management	<u>\$479 86</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	\$1,162 33
“ returned premiums	5 30
Total expenditure	<u>\$1,647 49</u>

CURRENCY OF RISKS.

Amount covered by policies in force 31st December, 1885.

SYSTEM.	Five years.	Total.
	\$ c.	\$ c.
Mutual	1,163,510 00	1,163,510 00

MOVEMENT OF RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	818	1,138,860 00
New and renewed during 1885	158	212,800 00
Gross number during 1885	976	1,351,660 00
Less expired and cancelled in 1885	131	188,150 00
Net risks in force 31st December, 1885	845	1,163,510 00

CLASSIFICATION OF RISKS :

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Five years.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment.....	23,270 20	23,270 20
Amount of all premium notes, after deducting all payments thereon and assessments levied	17,907 57	17,907 57
Amount of premium notes received during the year 1885	4,256 00	4,256 00

TOWNSHIP OF EAST WILLIAMS MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, NAIRN.

*Commenced business 8th August, 1875.**President*—NEIL McTAGGART.*Secretary*—WM. McCALLUM.

Unassessed premium note capital, \$4,863.87.

ASSETS.

Cash on hand	\$432 83
Cash in agents' hands, acknowledged by them to be due and considered good.	29 40
Amount unpaid of assessments levied during 1885	127 42
“ “ “ in prior years (not extended). \$24 66	
“ of premium notes in force, after deducting all payments thereon and assessments levied	4,863 87
Total assets	<u>\$5,453 52</u>

LIABILITIES.—None.

RECEIPTS.

Cash at Head Office, as per last statement (not extended)	\$104 15
Cash received as first payments on premium notes	159 59
“ on assessments levied during 1885	297 77
“ “ “ prior to 1885	44 92
“ agents' balances	17 90
Total receipts	<u>\$520 18</u>

EXPENDITURE.

Expenses of Management :

Amount paid for statutory assessment	\$9 11
“ printing, stationery and advertising	3 25
“ salaries, directors' and auditors' fees	74 00
“ fuel and light	50
“ postage	2 04
“ incidentals	2 60
Expenses of management	<u>91 50</u>

Miscellaneous Payments :

Cash paid for losses which occurred during 1885	100 00
Total expenditure	<u>\$191 50</u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	Three years.	Total.
	\$ c.	\$ c.
Mutual	302,840 00	302,840 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	251	294,870 00
New and renewed during 1885	84	92,045 00
Gross numbers and amount during 1885	335	386,915 00
Less expired and cancelled in 1885	78	84,075 00
Net risks in force on Mutual system, 31st December, 1885	257	302,840 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS

On Policies in force 31st December, 1885.

	Three year risks.	Total.
	\$ c.	\$ c.
Amount of face of all premium notes held by Company and legally liable to assessment	6,056 80	6,056 80
Amount of all premium notes, after deducting all payments thereon and assessments levied	4,863 87	4,863 87
Amount of premium notes renewed during the year 1885	1,840 90	1,840 90

THE YARMOUTH MUTUAL FIRE INSURANCE COMPANY.

HEAD OFFICE, YARMOUTH CENTRE.

Commenced business 17th October, 1881.

President—JOHN A. SQUANCE.

Secretary—W. E. LEONARD.

Unassessed premium note capital, \$6,402.83.

ASSETS.

Actual cash on hand at head office.....	\$15 12	
Cash on deposit to the Company's credit, not drawn against, in Southern Loan and Savings Company, St. Thomas.....	20 93	
		<u>\$36 05</u>
Amount of assessments unpaid, levied during 1885.....		11 84
Amount of premium notes in force, after deducting all payments thereon and assessments levied.....		6,402 83
Total assets		<u><u>\$6,450 72</u></u>

LIABILITIES—None.

RECEIPTS.

Cash at head office, as per last statement (not extended).....	\$1,237 41	
Cash received as first payments, being part payment of premium notes....		\$262 21
“ for assessments levied in 1885		516 90
“ “ before 1885.....		72 46
“ from transfer fees, etc.....		13 00
“ for interest		13 27
Total receipts		<u><u>\$877 84</u></u>

EXPENDITURE.

Expenses of Management:

Amount paid for statutory assessment or certificate.....	\$12 55
“ printing, stationery and advertising.....	47 90
“ postage, telegrams and express.....	6 59
“ salaries, directors' and auditors' fees.....	210 00
Total expenses of management.....	<u><u>\$277 04</u></u>

Miscellaneous:

Cash paid for losses which occurred during 1885.....	\$1,000 00
“ “ “ prior to 1885	800 00
	<u>1,800 00</u>
“ sundries.....	2 16
Total expenditure.....	<u><u>\$2,079 20</u></u>

CURRENCY OF RISKS.

Amount covered by Policies in force 31st December, 1885.

SYSTEM.	One year or less.	Over one but under two years.	Over two but under three years.	Three years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Mutual	3,530 00	5,650 00	2,875 00	434,667 00	446,722 00

MOVEMENT IN RISKS.

Mutual System.

	Number.	Amount.
		\$ c.
Policies in force 31st December, 1884	305	416,047 00
“ new and renewed during 1885	102	115,786 00
Gross number during 1885	407	531,832 00
Less expired and cancelled in 1885	73	85,110 00
Net risks in force 31st December, 1885	334	446,722 00

CLASSIFICATION OF RISKS.

Farm and Non-hazardous.

PREMIUM NOTES OR UNDERTAKINGS.

On Policies in force 31st December, 1885.

	One year risks or under.	Over one but under two year risks.	Over two but under three year risks.	Three years.	Total.
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Amount of face of all premium notes held by Company, and legally liable to assessment	14 86	48 75	45 64	8,487 72	8,596 97
Amount of all premium notes, after deducting all payments thereon and assessments levied	12 61	39 58	34 76	6,315 88	6,402 83
Amount of premium notes received during the year 1885	20 61	33 75	27 63	2,066 85	2,148 84

RECAPITULATION
OF
ASSETS, LIABILITIES, INCOME AND EXPENDITURE
OF ALL
STRICTLY MUTUAL FIRE INSURANCE COMPANIES.

PURELY MUTUAL COMPANIES.

ASSETS FOR THE YEAR ENDING 31st DECEMBER, 1886.

NAME OF COMPANY.	Real Estate, Cash Value.		Mortgages, Bonds, Debentures, and other Securities.		Cash.		Agents' Balances.		Assessments Unpaid of 1886.		Bills Receivable less than one year Overdue.		Unassessed Premium Note Capital.		Interest Due and Accrued.		All other Assets.		Total Assets.	
	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.
Bay of Quinte					66	17			92	16			13,802	07					13,960	40
Bertie and Willoughby					6	11							8,860	69					8,866	80
Blanshard					105	84							16,151	33					16,257	17
Blenheim, North					39	88							36,743	28					36,783	16
Brant County					878	91			924	87			79,419	54					81,223	32
Bruce, West									113	60			5,346	56					5,460	15
Canadian Millers'					1,811	15							22,187	86					23,999	01
Caradoc					106	81			3	52			6,479	72					6,586	06
Culross					233	54			38	47			17,475	87					17,747	88
Dominion Grange, General Branch					2,359	31					1,291	54	26,827	48	48	18	53	14	31,563	90
" " Grange Branch	4,284	13	984	25	1,687	90					3,283	71	116,811	76	499	23	265	69	139,182	42
Dorchester, North and South			12,350	00	1,969	47			31	91			5,460	82					7,462	20
Downie					48	10			10	21			7,494	43					7,552	74
Dumfries, North, and Waterloo, South									790	48			159,729	58					160,520	06
Dunwich					166	96			144	38			8,887	74					9,199	08
Easthope, South			200	00	220	61							68,909	42					69,330	03
Economical					28,519	83	408	72	2,808	08	1,012	79	140,489	93	602	86			173,842	21
Elma					35	35							13,623	22					13,678	22
Eramosa					2,816	22			91	66			12,278	92					15,186	80
Erie					245	11			82	56	176	70	12,206	60					12,710	97
Formosa					546	60	149	88	4	08			13,261	20					13,961	76
Germania					41	10							16,735	31					16,776	41
Globe					2,344	26	19	42	520	19	67	45	12,696	36	42	66	11	72	15,702	06

Grand River	611 36	35 00	206 33	4,622 10	7 00	5,481 78
Grey and Bruce	1,836 02		324 15	11,748 65		13,908 82
Guelph Township	538 91			19,392 05		19,990 96
Hay	1,512 81			42,961 29		44,474 10
Hopewell Creek	41 73			43,541 97		43,685 70
Howick	1,357 45		801 70	119,327 91		121,487 06
Huron and Middlesex	202 74	1,065 79	1,466 88	48,275 68	15 00	54,414 21
Lambton	4,577 09	32		22,528 64		28,114 28
Lennox and Addington	924 48		225 00	6,942 92		8,092 40
Lobo	870 26		76 27	11,619 26		12,585 79
London Township	81 04		49 95	13,206 80		13,337 79
McGillivray	202 85			7,641 96		9,979 81
McKillop	29 99		381 46	42,592 98		43,004 43
Nichol	2,307 96		2,831 95	59,464 67		64,991 77
Nissouri, East and West, and Zorra West			1,499 35	64,603 34		66,102 69
Norfolk	1,657 50	85 61	417 49	10,572 10		12,732 70
Oneida	153 25			7,599 00		7,752 25
Oxford			75 45	17,567 35		17,642 80
Peel County	438 38		1,753 07	39,701 67		41,893 12
Pushinch	519 99			7,892 21		8,412 20
Saltfleet and Binbrook	28 83			5,457 02		5,493 03
Sauguen			4,444 95	29,212 21		33,657 16
Simcoe			150 50	3,333 82		3,484 32
Southwold	164 81		199 05	8,742 88		9,106 74
Sydenham	1,485 53	120 11		35,678 72		37,284 86
Townsend	259 57		91 66	10,980 34		11,331 57
Usborne and Hibbert	716 81		117 44	22,487 62		23,321 87
Victoria	192 79		737 05	30,151 04		31,312 08
Walpole	906 22	34 16		23,052 18		23,999 04
Waterloo, North	68 31		7 08	108,493 47		109,288 15
Wawanosh, West	155 00		726 37	62,437 13		62,739 62
Wellington	5,374 53	328 29	7,047 98	310,779 34		323,887 74
Westminster	6,023 94			17,907 57		24,531 51
Williams, East	432 83	29 40	127 42	4,963 87		5,453 52
Yarmouth	36 05		11 84	6,402 83		6,450 72
Totals	78,688 25	2,277 70	29,593 70	2,101,658 27	1,207 93	2,244,989 49

PURELY MUTUAL COMPANIES.

LIABILITIES FOR THE YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	LOSSES.			Borrowed Money.	Salaries and Directors' Fees.	Small Accounts.	Total Liabilities.	Number of Policies in force.	Amount at Risk.
	Adjusted.	Revised.	Reported but not Adjusted.	\$	c.	\$	c.	\$	c.
Bay of Quinte.....						1 24	1 24	729	949,905 00
Bertie and Willoughby.....							nil.	507	568,152 00
Blanshard.....				1,100 00		45 00	1,145 00	578	778,096 00
Blenheim, North.....				150 00			150 00	342	731,150 00
Brant, County.....							nil.	2,247	3,001,469 00
Bruce West.....	70 00			9 41	50 40	26 40	156 21	109	154,760 00
Canadian Millers'.....							nil.	141	284,100 00
Canadoc.....				6 62	81 50		88 12	158	192,475 00
Culross.....							nil.	329	460,638 00
Dominion Grange, General Branch.....	528 00					50	528 50	1,577	1,614,884 00
" " Grange Branch.....	12 70					343 25	355 95	4,712	5,896,033 00
Dorchester, North and South.....							nil.	615	877,046 00
Downie.....							nil.	214	325,005 00
Dunfries, North, and Waterloo, South.....				145 36			145 36	1,558	3,535,687 00
Dunwich.....				200 00			200 00	495	537,691 00
Easthope, South.....							nil.	848	1,451,400 00
Economical.....							nil.	3,245	3,245,005 00
Elina.....							nil.	208	276,308 00
Erasmoss.....							nil.	193	378,660 00
Erie.....	700 00						700 00	570	607,286 00
Formosa.....							nil.	418	442,515 00
Germania.....					55 50		55 50	555	710,470 00
Globe.....			325 00		107 95		432 95	1,227	776,341 00

PURELY MUTUAL COMPANIES.

INCOME FOR THE YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	First Payment on Premium Notes.		Assessments for 1885.		Arrears of Prior Assessments.		Fees or Surveys.		Licenses, extra Risks and Transfers.		Interest.		Repayment of Money loaned—Due Bills.		Borrowed Money.		Investments.		Other Sources.			
	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.
Bay of Quinte	522	36	1,106	72	58		264	00	6	50					140	00			3	35	1,779	51
Bertie and Willoughby	131	62							143	98					1,845	00			30		539	60
Blaushard							50	95							150	00					1,845	30
Blenheim, North			3,912	87	826	54									800	00			35	24	200	95
Brant County	54	50	600	85																	5,574	65
Bruce, West																					655	35
Canadian Millers'	4,436	20	2,233	07	160	00	36	50	48	40	8	31	55	50	1,600	00			50	09	8,649	48
Caradoc	48	38	96	78			78	00	13	00											194	66
Culross			502	61	6	56															587	17
Dominion Grange, General Branch	1,799	78							450	28	27	11	3,015	90			805	84	561	80	4,842	79
" " Grange Branch	6,170	90	1,324	37	11	28					734	75	7,016	02							15,739	59
Dorchester, North and South	363	95	91	85			106	50			91	05									1,790	65
Downie			6,928	93	603	25															198	35
Dumfries, North, and Waterloo, South			1,243	65	69	26	38	25			11	34	2,462	02							9,994	20
Dunwich													400	00							1,762	50
Easthope, South					111	16					14	00									125	16
Economical	10,506	44	9,087	52	2,117	17			63	90	1,422	66									23,197	69
Elina			226	52			30	50													267	02
Eranoes	137	95	116	59	82	86	77	25			101	12									515	77
Erie	87	68	777	09			110	50	16	25			9	07							1,000	59
Fortuna	118	28	108	88	10	98					37	25							17	54	392	91
Germania					97	85	39	00	2	00											138	85
Globe	1,207	65	1,156	08	171	93			18	50	40	11									2,593	25

Grand River.....	815 84	107 02	19 25	3 00	10 04				955 75
Grey and Bruce.....	433 25	38 69			60 45				532 39
Guelph Township.....	202 82	376 95							579 77
Hay.....	232 45				56 00				309 29
Hopewell Creek.....	3 15								1,981 96
Howick.....	6,413 85	229 23							9,943 09
Huron and Middlesex.....	11,228 71	675 15	140 16	62 55	38 35			1,245 73	19,939 06
Lambton.....	5,036 78				140 03				6,527 41
Lennox and Addington.....	1,206 41	334 27			16 55			3 05	2,855 38
Lobo Township.....	372 43	50 88			44 59				643 31
London Township.....	1,230 66	18 15			7 19				1,319 12
McGillivray.....			1,177 20		131 92	2,091 30			3,400 42
McKillop.....	3,551 34	178 55		55 35	17 60				6,502 84
Nichol.....	935 21	834 15			33 74	811 70		1 58	16,187 26
Nissouri, East and West, and Zorra, West.....	146 00	238 65		12 00		8,500 00			4,889 23
Norfolk.....	570 83	200 17		24 74	1 42	2,251 24			3,747 13
Oneida.....			100 25	21 00				28 90	150 15
Oxford.....	160 00	645 70				721 45			1,527 15
Peel County.....	646 08	958 34		6 76		881 00			4,108 74
Preslinch.....	146 52		10 50		16 83				173 85
Saltfleet and Binbrook.....	212 79	88 20	5 00						305 99
Saugeen.....	1,624 71	3,951 52		27 77	4 79	7,500 00		43 77	14,260 31
Simcoe.....		199 50	12 50			180 00			392 00
Southwold.....	56 00	3,033 63			9 25	450 00			3,633 13
Sydenham.....	730 27	7 89	285 50	50 00	37 65			38 00	1,149 31
Townsend.....	226 98	30 78	305 00						3,729 49
Usborne and Hibbert.....						500 00			2,051 62
Victoria.....	1,327 55	592 58		10 14	6 88			16 03	4,724 95
Walpole.....	302 24	959 38							1,648 06
Waterloo, North.....		3,324 43	373 50			1,000 00			4,727 59
Wawanosh.....	312 29	1,229 00	210 50	26 75		400 00			2,278 90
Wellington.....	9,439 49	6,735 78		34 19	201 18	136 05		618 21	25,113 34
Westminster.....		2,069 31	146 60		364 47				2,590 38
Williams, East.....	159 59	237 77						17 90	520 18
Yarmouth.....	252 21	516 90	13 00		13 37				877 84
Totals.....	60,000 79	89,404 38	3,630 41	1,098 43	3,700 50	13,135 54	36,925 81	2,681 40	235,332 36

PURELY MUTUAL COMPANIES.

EXPENDITURE FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Losses.	Repayments of Borrowed Money.	Reinsurance.	Refunds, Rebate, and Returned Premiums.	General Expense Account.	Agents' Commission and Fees.	Interest.	Law Costs.	Statutory Assessment or Certificate.	Investments.	All Other Expenses.	Total.
	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.	\$	c.
Bay of Quinte.....	1,087 19	140 00			453 07	120 40	1 72		25 15			1,827 53
Bertie and Willoughby.....	32 50				306 76	161 05			15 14			635 45
Blanshard.....	1,375 00	700 00			61 20		52 00		21 37			2,209 57
Blenheim, North.....	65 00				66 36			14 00	20 12			165 48
Brant County.....	2,071 29	1,850 00			854 30	556 71	106 75	24 29	80 77			5,544 11
Bruce, West.....	560 00				84 76				20 00			664 76
Canadian Millers'.....	3,780 43	1,600 00	302 00	68 50	878 84	772 24	27 91		4 59			7,434 51
Caradoc.....	2 00	41 74			36 85			4 00	3 26			87 85
Culross.....	200 00	7 72			105 20	27 50			13 21			353 63
Dominion Grange, General Branch.....	1,687 54		13 53	77 75	1,831 66	130 00		15 22	75 86	1,139 84		4,971 44
" " Grange Branch.....	5,674 19		96 03	3,081 89	4,855 70	289 25		30 42	151 74	472 26	300 00	14,951 48
Dorchester, North and South.....	21 33				215 70				24 71			261 74
Downie.....	1 00	30 00			26 02	86 19			6 54			160 25
Dumfries, N., and Waterloo, S.....	5,415 96	2,906 19			1,446 60		117 00	4 00	104 45			9,994 20
Dunwich.....	1,186 00	227 77			157 75		7 46		16 56			1,595 54
Easthope, South.....	650 00				222 50				39 86			912 16
Economical.....	15,686 26		15 92	257 38	3,433 84	1,687 00		49 73	74 57			21,204 80
Elma.....	110 00				112 24		7 70		5 92			235 86
Eramosa.....	28 15				113 89	77 25			8 33			227 62
Erie.....	697 21				172 52	65 25			17 99			942 97
Formosa.....	875 00				101 00				9 02			985 02
Germania.....	3 60				87 51	1 50			19 50			112 11
Globe.....	641 36			16 79	622 09	480 37			22 03			1,802 64

Grand River.....	945 00	194 15	12 27	1,152 29
Grey and Bruce.....	16 67	223 35	20 12	400 74
Guelph Township.....		86 10	13 19	99 29
Hay.....	155 33	182 80	47 01	385 14
Howell Creek.....	754 58	251 30	23 34	2,142 68
Howick.....	3,963 26	1,049 78	79 71	8,958 77
Huron and Middlesex.....	10,175 86	4,196 25	52 13	17,274 48
Lambton.....	2,631 65	700 51	69 09	4,979 30
Lennox and Addington.....	1,310 34	196 98	23 71	4,133 59
Lobo.....	401 60	95 25	7 59	546 94
London Township.....	1,133 00	71 50	14 28	1,329 78
McGillivray.....	1,050 00	52 75	8 64	1,213 74
McKillop.....	3,098 98	579 82	63 24	6,062 21
Nichol.....	6,085 45	972 52	62 75	13,435 70
Nisour, E. and W., and Zorra W.....	2,695 69	344 70	41 63	4,996 68
Norfolk.....	1,880 50	763 98	31 47	3,000 70
Oneida.....		96 00	12 62	108 62
Oxford.....	568 00	284 60	8 62	1,560 65
Peel County.....	2,480 24	814 88	75 85	4,445 47
Puslinch.....	54 00	33 50	11 39	119 69
Saltfleet and Binbrook.....	277 90	178 65	10 65	534 70
Saugen.....	9,115 48	1,046 36	38 29	15,778 49
Simcoe.....	180 00	107 70	5 25	476 05
Southwold.....	3,420 00	245 25	19 81	4,160 06
Sydenham.....	440 00	369 15	49 51	881 66
Townsend.....	2,990 00	308 85	26 92	3,526 58
Usborne and Hibbert.....	537 58	352 82	33 37	1,433 77
Victoria.....	1,110 73	3,416 39	49 26	5,297 15
Walpole.....	831 10	371 55	35 66	1,372 81
Waterloo, North.....	988 00	664 43	65 95	4,659 28
Wawanosh.....	1,435 87	753 92	40 09	2,346 82
Wellington.....	16,709 90	4,161 83	87 70	24,727 74
Westminster.....	1,162 33	434 67	34 36	1,647 49
Williams, East.....	100 00	445 50	9 11	191 50
Yarmouth.....	1,800 00	266 65	12 55	2,079 20
Totals.....	122,393 55	40,208 72	1,977 72	222,620 44

MUTUAL COMPANIES OF ALL CLASSES.

COMPARATIVE SUMMARY OF ASSETS AND PREMIUM NOTES FOR YEAR ENDING 31st DECEMBER, 1885.

NAME OF COMPANY.	Gross Amount at Risk on Mutual Plan.	Premium Notes un- assessed amount.	Surplus of General Assets over Liabilities.	New business taken during year 1885.	Premium Notes taken during year 1885.	Rate per cent. of said Premium Notes to new business.	Terms of Insurance in years.
Bay of Quinte.....	949,905 00	13,802 07	13,959 16	312,320 00	5,171 78	1.66	3, 4, 5
Bertie and Willoughby.....	588,152 00	8,800 69	8,866 80	211,635 00	3,298 65	1.55	3, 4, 5
Blainshard.....	778,095 00	16,151 33	13,112 17	82,850 00	1,985 00	2.40	5
Blenheim, North.....	731,150 00	36,743 28	35,633 16	206,350 00	10,367 50	5.02	5
Brant County.....	3,001,469 00	79,419 54	81,223 32	1,006,080 00	30,468 75	3.03	5
Bruce, West.....	154,750 00	6,115 50	5,303 94	154,750 00	6,115 50	3.95	3
Canadian Millers'.....	284,100 00	23,395 86	23,999 01	196,600 00	22,676 00	11.53	3
Caradoc, Farmers'.....	192,475 00	5,475 72	5,497 93	102,015 00	3,023 25	2.96	5
Culross.....	460,638 00	17,475 87	17,747 88	156,475 00	6,261 68	4.	3
Dominion Grange, General Branch.....	1,614,884 00	26,903 24	31,035 40	644,788 00	12,859 23	2.	1, 2, 3
" Grange.....	5,896,033 00	117,136 92	138,826 47	1,911,993 00	37,505 38	1.96	1, 2, 3, 4
Dorchester, North and South.....	877,046 00	5,460 82	7,462 20	293,735 00	4,794 70	2.	5
Dowrie.....	325,005 00	7,494 43	7,552 74	108,125 00	2,661 42	2.46	5
Dumfries, North and Waterloo South.....	3,535,667 00	159,729 58	160,374 70	794,985 00	39,749 25	5.	5
Dunwich.....	537,691 00	8,887 74	8,939 08	96,065 00	2,401 62	2.50	5
Easthope, South.....	1,451,400 00	68,909 42	69,330 03	351,650 00	17,582 50	5.	5
Economical.....	3,248,005 00	140,978 00	173,842 21	1,372,035 00	77,292 00	5.63	3
Elma.....	276,308 00	13,623 22	13,678 22	84,535 00	4,227 75	5.	3
Eramosa.....	378,660 00	12,278 92	15,186 80	134,700 00	6,215 25	4.61	3
Erie.....	607,235 00	12,206 60	12,010 97	85,896 00	2,229 87	2.60	5
Formosa.....	442,515 00	13,261 20	13,961 76	206,790 00	6,644 00	3.21	3
Germania.....	710,470 00	16,735 31	16,720 91	218,355 00	5,261 00	2.41	5
Globe.....	776,541 00	12,636 36	15,269 11	333,360 00	7,375 66	2.21	3
Gore District.....	2,184,888 01	123,239 90	192,432 39	970,103 00	79,182 00	8.16	1, 2, 3
Grand River.....	413,910 00	4,622 10	6,481 78	110,625 00	1,678 83	1.50	3
Gray and Bruce.....	669,329 00	11,748 65	13,908 82	129,575 00	1,923 53	1.48	1, 2, 3, 4, 5
Guelph Township.....	450,340 00	19,392 05	10,900 06	149,890 00	7,029 00	4.70	3

	489,486 00	6,020 14	31,738 53	387,504 00	3,815 96	1, 3, 4
Hand-in-Hand.....	1,689,787 00	42,961 29	44,474 10	459,550 00	2.82	5
Hay Township.....	843,749 00	43,941 97	43,385 70	240,655 00	5.58	5
Hopewell Creek.....	2,893,268 00	119,327 91	121,487 06	616,595 00	5.20	5
Howick.....	1,881,207 00	48,837 80	48,974 71	860,915 00	4.09	1, 3
Huron and Middlesex.....	2,511,757 00	22,528 64	28,112 08	882,955 00	1.50	3
Lambton.....	514,840 00	6,942 92	6,970 09	113,024 00	2.28	3
Lennox and Addington.....	315,339 00	11,619 26	12,565 79	184,465 00	4.01	3
Lobo.....	597,980 00	13,206 80	13,337 79	142,085 00	1.92	3, 4, 5
London Township.....	318,465 00	7,641 96	9,979 81	218,700 00	7,641 96	3
McGillivray.....	2,075,853 75	42,592 98	43,004 43	413,165 00	10,904 00	5
McKillop.....	241,100 00	5,068 77	20,175 54	246,600 00	5,080 52	1 or less.
Millers' and Manufacturers'.....	2,167,207 00	59,454 67	58,953 27	800,935 00	3.96	5
Nichol.....	1,460,421 00	64,603 34	64,771 61	265,780 00	5.	5
Niassouri, East and West, and Zorra West.....	1,106,749 00	10,572 10	10,134 13	514,938 00	1.47	3
Norfolk.....	430,354 00	7,599 00	7,752 25	149,441 00	3,545 08	3, 4, 5
Oneida.....	1,188,463 00	7,386 11	4,501 78	345,731 00	1.50	1, 2, 3
Ontario.....	470,425 00	17,567 35	17,596 35	193,250 00	4.00	1, 2, 3, 4, 5
Oxford.....	2,617,639 00	39,701 67	41,408 03	633,905 05	2.06	4
Peel County.....	2,819,885 00	45,730 20	59,784 62	1,127,111 00	3.07	3
Perth.....	416,725 00	7,923 41	8,402 20	150,045 00	2.	3
Puslinch.....	381,905 00	5,457 02	5,493 02	102,015 00	1.52	3
Saltsfleet and Eimbrook.....	1,347,256 00	29,651 45	25,773 86	572,731 00	3.42	1, 3
Saugen.....	3,333 08	3,333 82	3,425 09	72,402 00	2.14	3, 5
Simcoe County.....	680,150 00	8,742 88	9,106 74	159,350 00	2.00	5
Southwold.....	1,807,471 00	35,678 72	37,284 36	713,961 00	2.08	1, 2, 3, 4, 5
Sydenham.....	916,490 00	10,980 34	11,331 57	353,755 00	1.60	3
Townsend.....	1,377,055 00	22,487 62	23,321 87	338,540 00	2.50	5
Usborne and Hibbert.....	1,135,563 00	30,151 04	30,866 89	371,215 00	3.36	3
Victoria.....	1,183,955 00	23,052 18	23,999 64	327,085 00	2.08	1, 2, 3, 4, 5
Walpole.....	3,312,368 67	144,526 35	188,010 84	1,257,499 00	7.02	3
Waterloo.....	2,338,344 00	108,493 47	109,288 15	590,765 00	5.08	5
Waterloo, North.....	1,650,284 00	62,437 13	61,739 62	1,328,671 00	1.56	3
Wawanosh, West.....	3,210,043 00	310,779 34	323,868 63	1,347,790 00	11.79	5
Wellington.....	1,163,510 00	17,907 57	24,530 63	212,800 00	2.00	3
Westminster.....	302,840 00	4,863 87	5,453 52	92,045 00	2.00	5
Williams, East.....	446,722 00	6,402 83	6,450 72	115,785 00	1.86	1, 2, 3
Yarmouth.....	79,972,530 51	2,437,438 24	2,710,842 94	27,286,667 00	1,052,927 46	

REGISTER OF INSURANCE COMPANIES, INCLUDING ALL COMPANIES AT FEB. 23RD, 1887.

Pages.	NAME OF COMPANY.	System.	Head Office.	President.	Post Office.	Secretary.	Post Office.
46	Bay of Quinte Agricultural.	Mutual	Pictou	Arch. Southard.	Pictou	J. Roland Brown.	Pictou.
49	Bertie and Willoughby Farmers'	Mutual	Ridgeway	W. E. Elsworth	Ridgeway	H. N. Hibbard	Ridgeway.
51	Blanchard	Mutual	Woodham	W. T. Sanderson	St. Mary's	Wm. Johnson	Woodham.
53	Blenheim, North.	Mutual	Chesterfield	Thos. Lockhart.	St. Mary's	Geo. Middlemas	Chesterfield.
55	Brant County Farmers'	Mutual	Paris	M. Freeman	Princeton	Wm. Turnbull	Paris.
57	Bruce, West, Farmers'	Mutual	Kincardine	Rob't. Baird	Kincardine	E. Thornhill	Kincardine.
59	Canadian Millers'	Mutual	Hamilton	D. Goldie	Ayr	Seneca Jones	Hamilton.
62	Caradoc Farmers'	Mutual	Mount Brydges	W. Young	Mount Brydges	Wm. E. Sawyer	Mount Brydges.
64	City Mutual of London	Mutual and Cash.	London	Jas. Cowan	London	Hugh Vallance	London.
64	Culross	Mutual	Teeswater	Thos. Allison.	Teeswater	Wm. Colvin	Teeswater.
66	Dominion Grange	Mutual	Owen Sound	Jesse Trull.	Oshawa	R. J. Doyle	Owen Sound.
71	Dorchester, North and South.	Mutual	Harriessville	Wm. Woods	Crumlin	Francis Kunz	Harriessville.
73	Downie	Mutual	St. Paul's	Jas. Ballantyne	Sebringville	Peter Smith	Sebringville.
75	Dunfries, N. and Waterloo, S.	Mutual	Ayr	Jno. W. Martin	Preston	Wm. Deans	Galt.
77	Dunwich Farmers'	Mutual	Wallacetown	P. Stalker	Crinan	John L. Pearce	Wallacetown
79	Easthope, South, Farmers'	Mutual	Tavistock	Werner Youngblut.	Tavistock	Robert Reid	Tavistock.
81	Economical	Mutual	Berlin	Hugo Kranz, M.P.	Berlin	W. Oelschlaeger	Berlin.
84	Elma Farmers'	Mutual	Attwood	Wm. Shearer	Listowel	Robert Cleland	Listowel.
86	Frankosa	Mutual	Rockwood	David Rae	Speedside	Hugh Black	Rockwood.
88	Eric Farmers'	Mutual	Selkirk	Guy Culver	Rainham Centre.	J. W. Holmes	Selkirk.
90	Fire Insurance Exchange	Mutual and Guarantee.	Toronto	Fred. Wyld	Toronto	Andrew Darling	Toronto.
90	Formosa	Mutual	Formosa	Andrew Waechter	Walkerton	Julius Noll	Formosa.
92	Germania Farmers'	Mutual	Lot 4, Con. 8, Normanby	John Reodding.	Alfeldt	Geo. Hopf	Moltke.
94	Globe	Mutual	Brantford	John Strickland	Brantford	Edwin Sims	Brantford.
19	Grand District	Mutual and Cash.	Galt	Hon. J. Young	Galt	R. S. Strong	Galt.
97	Grove River	Mutual	York	Wm. H. Hull	Caledonia	F. A. Nelles	York.
99	Grey and Bruce	Mutual	Hanover	David McNichol	Lamash	Duncan Campbell	Hanover.
101	Guelph Township	Mutual	Guelph	John Hobson	Mosborough	Wm. Whitelaw	Guelph.
23	Hand-in-Hand	Mutual and Stock	Toronto	W. H. Howland	Toronto	Hugh Scott	Toronto.
103	Hay Township Farmers'	Mutual	Zurich	Daniel Surarus	Zurich	Henry Eilber	Crediton.
106	Hopewell Creek	Mutual	New Germany	Joseph Springer	Kosuth	Anton Frank	New Germany.
108	Hewick Farmers'	Mutual	Gorrie	James Edgar	Gorrie	Thos. F. Miller	Wroster.
110	Huron and Middlesex	Mutual	London	L. C. Leonard	London	John Stephenson	London.

Part II

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113 Lambton Farmers'	Mutual	Watford	Geo. Dewar	Ketch.	W. G. Willoughby	Walnut.
115 Lennox and Addington	Mutual	Napanee	John B. Aylsworth	Newburgh	C. James	Napanee.
117 Lobo Township	Mutual	Coldstream	T. T. Turnbull	Komoka	Jacob Marsh	Coldstream.
119 London Township Farmers	Mutual	Arva	Edward Roberts	Bryanston	E. Lann	Bryanston.
121 McGillivray	Mutual	Lot 15, c. 14, W. McGillivray	Andrew Robinson	W. McGillivray	W. Fraser	W. McGillivray.
123 McKillop	Mutual	Lot 17, con. 5, McKillop	Thos. E. Hays	Seaford	W. J. Shannon	Seaford.
5 Mercantile	Stock	Waterloo	J. E. Bowman	St. Jacobs	P. H. Sims	Waterloo.
27 Millers' and Manufacturers	Stock and Mutual	Toronto	Jas. Goldie	Guelph	W. Ireland Scott	Toronto.
125 Nichol	Mutual	Nichol	Wm. Taylor	Fergus	John Beattie	Fergus.
127 Nisour Farmers'	Mutual	Kimore	David Chalmers	Cherry Grove	E. J. Pearson	Kimore.
129 Norfolk Farmers	Mutual	Simcoe	R. M. Wilson	Delhi	W. Roberts	Simcoe.
131 Oneida Farmers'	Mutual	Town Hall, Oneida	David Kett	Willow Grove	John Senn	York.
30 Ontario	Mutual and Cash	London	A. McCormick	London	P. F. Boyle	London.
133 Oxford Farmers'	Mutual	Enbro	A. McCorquodale	Nissouri	Robert Murray	Enbro.
135 Peel County Farmers'	Mutual	Brampton	Thos. Holby	Brampton	L. Cheyne	Brampton.
32 Perth County	Mutual and Cash	Stratford	John Hyde, M.D.	Stratford	Chas. Packert	Stratford.
137 Puslinch	Mutual	Aberfoyle	D. McFarlane	Aberfoyle	Jas. Scott	Aberfoyle.
9 Queen City	Stock	Toronto	W. H. Howland	Toronto	T. Walmsley	Toronto.
139 Saltfleet and Binbrook	Mutual	Elfrida	A. D. Lee	Stony Creek	J. C. Harris	Hamilton.
141 Sauguen	Mutual	Mount Forest	James Murdoch	Yeovil	H. L. Drake	Mount Forest.
144 Simcoe County	Mutual	Kewansville	P. B. Skelly	Tottenham	T. R. Carmichael	Tottenham.
146 Southwold Farmers'	Mutual	Sheddon	Donald Turner	West Magdala	R. N. Stafford	Sheddon.
148 Sydenham	Mutual	Annan	Gideon Harkness	Annan	Hugh Reid	Annan.
150 Townsend Farmers'	Mutual	Waterford	Oscar McMichael	Waterford	L. N. Colver	Waterford.
152 Usborne and Hibbert	Mutual	Farquhar	Robert Gardiner	Farquhar	James Gillespie	Cromarty.
154 Victoria	Mutual	Hamilton	Geo. H. Mills	Hamilton	W. D. Booker	Hamilton.
157 Walpole Farmers'	Mutual	Jarvis	Chas. Simon	Garnet	John Heaman	Jarvis.
35 Waterloo	Mutual and Cash	Waterloo	Chas. Hendrie	Waterloo	C. M. Taylor	Waterloo.
159 Waterloo North, Farmers	Mutual	Waterloo	B. J. Ballard	Hawkesville	L. Stauffer	Waterloo.
161 Wawanosh, West	Mutual	St. Helens	Charles Girvin	Nie	Robert Murray	St. Helens.
163 Wellington	Mutual	Guelph	F. W. Stone	Guelph	Chas. Davidson	Guelph.
166 Westminster Township	Mutual	Lot 14, con. 4, Westminster	John H. Little	Lambeth	Henry Anderson	Wilton Grove.
168 Williams, East	Mutual	Nairn	N. McTaggart	Nairn	Wm. McCallum	Nairn.
170 Yarmouth	Mutual	Lot 13, con. 8, Yarmouth	John A. Sqaunce	St. Thomas	W. E. Leonard	St. Thomas.

* The City Mutual Fire Insurance Company of London Ont. made an initial deposit of \$25,000 with the Provincial Treasurer and was duly authorized to transact

46	Ba	49	Be	51	Bi	53	Bi	55	Bi	57	Br	59	Cz	62	Ci	64	Ci	66	D	71	D	73	D	75	D	77	D	79	E	81	E	84	E	86	E	88	E	*	F	90	F	92	G	94	G	96	G	97	G	99	G	101	G	23	F	103	F	105	F	108	F	110	F
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113 Lambton Farmers'	Mutual	Watford	Geo. Dewar	Ketch	W. G. Willoughby	Walnut.
115 Lennox and Addington	Mutual	Napanee	Jno. B. Aylsworth	Newburgh	C. James	Napanee.
117 Lobo Township	Mutual	Coldstream	T. T. Turnbull	Komoka	Jacob Marsh	Coldstream.
119 London Township Farmers'	Mutual	Arva	Edward Roberts	Bryanston	E. Lann	Bryanston.
121 McGillivray	Mutual	Lot 15, c. 14	W. McGillivray	W. McGillivray	W. Fraser	W. McGillivray.
123 McKillop	Mutual	Lot 17, con. 5	McKillop	Seaford	W. J. Shannon	Seaford.
5 Mercantile	Stock	Waterloo	Thos. E. Hays	St. Jacobs	P. H. Sims	Waterloo.
27 Millers and Manufacturers	Stock and Mutual	Toronto	Jas. Goldie	Guelph	W. Ireland Scott	Toronto.
125 Nichol	Mutual	Nichol	Wm. Taylor	Fergus	John Beattie	Fergus.
127 Nissouri Farmers'	Mutual	Kintore	David Chalmers	Cherry Grove	E. J. Pearson	Kintore.
129 Norfolk Farmers'	Mutual	Simcoe	R. M. Wilson	Delhi	W. Roberts	Simcoe.
131 Oneida Farmers'	Mutual	Town Hall, Oneida	David Kett	Willow Grove	John Senn	York.
30 Ontario	Mutual and Cash	London	A. McCormick	London	P. F. Royle	London.
133 Oxford Farmers'	Mutual	Embro	A. McCorquodale	Nissouri	Robert Murray	Embro.
135 Peel Comty Farmers'	Mutual	Brampton	Thos. Holthy	Brampton	L. Cheyne	Brampton.
32 Perth County	Mutual and Cash	Stratford	John Hyde, M.D.	Stratford	Chas. Packert	Stratford.
137 Puslinch	Mutual	Aberfoyle	D. McFarlane	Aberfoyle	Jas. Scott	Aberfoyle.
9 Queen City	Stock	Toronto	W. H. Howland	Toronto	T. Walmsley	Toronto.
139 Saltfleet and Binbrook	Mutual	Elfrida	A. D. Lee	Stony Creek	J. C. Harris	Hamilton.
141 Sauguen	Mutual	Mount Forest	James Murdoch	Yeovil	H. L. Drake	Mount Forest.
144 Simcoe County	Mutual	Keenansville	P. B. Skelly	Tottenham	T. R. Carmichael	Tottenham.
146 Southwold Farmers'	Mutual	Sheddon	Donald Turner	West Magdala	R. N. Stafford	Sheddon.
148 Sydenham	Mutual	Annan	Gideon Harkness	Annan	Hugh Reid	Annan.
150 Townsend Farmers'	Mutual	Waterford	Oscar McMichael	Waterford	L. N. Collver	Waterford.
152 Usborne and Hilbert	Mutual	Farquhar	Robert Gardiner	Farquhar	James Gillespie	Cromarty.
154 Victoria	Mutual	Hamilton	Geo. H. Mills	Hamilton	W. D. Booker	Hamilton.
157 Walpole Farmers'	Mutual	Jarvis	Chas. Simon	Garnet	John Heasman	Jarvis.
35 Waterloo	Mutual and Cash	Waterloo	Chas. Hendrie	Waterloo	C. M. Taylor	Waterloo.
159 Waterloo North, Farmers	Mutual	Waterloo	B. J. Ballard	Hawkesville	L. Stauffer	Waterloo.
161 Wawanosh, West	Mutual	St. Helens	Charles Girvin	Nie	Robert Murray	St. Helens.
163 Wellington	Mutual	Guelph	F. W. Stone	Guelph	Chas. Davidson	Guelph.
166 Westminster Township	Mutual	Lot 14, con. 4	Westminster	Lambeth	Henry Anderson	Wilton Grove.
168 Williams, East	Mutual	Nairn	N. McTaggart	Nairn	Wm. McCallum	Nairn.
170 Yarmouth	Mutual	Lot 13, con. 8	Yarmouth	St. Thomas	W. E. Leonard	St. Thomas.

* The City Mutual Fire Insurance Company, of London, Ont. made an initial deposit of \$6,000 with the Provincial Treasurer, and was duly authorized to transact

UNIVERSITY OF MICHIGAN



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